LISTED BUILDING ELECTRICAL INSTALLATION STANDARDS STATEMENT REPORT

Heaton Park Hall

Manchester City Council



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1. HEATON HALL BUILDING HISTORY

Heaton Hall Country House was until recently used as a museum and art gallery. The hall is a mid-eighteenth-century building, remodelled in 1772-89 by James Wyatt for Sir Thomas Egerton; enlarged with a new orangery building added circa 1823 by Lewis Wyatt.

The building consists of sandstone ashlar with dressings of Coade stone, hipped slate roofs. Long range on east-west axis, composed of a central block linked by colonnaded wings to octagonal pavilions (kitchen to west, library to east) and with 1823 additions to the north side of wings and pavilions, and orangery continued at east end. Palladian style one and two storeys with entrance front to north and principal facade to south - both symmetrical.

The south facade, entirely by James Wyatt, is composed of a 2-storey 5-bay centre with a prominent 3-window bow, flanked by single-storey 7-bay wings with tall colonnades mounted on steps and linked to slightly higher octagonal single-storey pavilions.

The centre block has steps up to the bow flanked by a lion and lioness of cast lead on stone pedestals; giant Ionic semi-columns to the bow and pilasters to the outer bays, a guilloche string-course, plain frieze, cornice and blocking course; its bow has 12- and 9-pane sashed windows, Coade stone panels between floors depicting classical rustic scenes, and a shallow domed lead roof; and each outer bay has a large Venetian window in a blank arch at ground floor, and a 9-pane sash above.

The colonnades have fluted friezes enriched with antique ox-skulls (bucrania) and very tall 15-pane windows - (those on the left wing now boarded). The pavilions each have pilasters and a frieze like the colonnades, a cornice and high parapet, a large Venetian window in the centre and swagged panels over the windows in the canted side bays.

The north front of the main block, 2:3:2 bays, with pedimented centre breaking forwards, 1st-floor sill-band, moulded cornice and blocking course, has a tetra style portico mounted on steps, tall 12-pane sashed windows at ground floor, horizontal panels above these, and 9-pane sashed windows at 1st floor; and attached at each side of this are the 1823 additions to the rear of the wings, 2 lower storeys and 7 bays each, with pilasters and sashed windows (differing slightly), and massive clustered chimney stacks.

The former orangery to the east, facing south, is a long symmetrical single-storey range, 3:3:5:3:3 bays, with projected polygonal centre, the ends colonnaded and the rest pilastered with a full-height window in each bay, a moulded cornice and blocking course carried round the whole, and now with a flat roof replacing the original glazed central dome and pitched roofs.

Interior Aspects

Fine original features including entrance hall, staircase hall with imperial staircase and colonnaded landing, saloon, dining room, billiard room, music room, library, and at 1st floor the Cupola Room which has very rare survival of complete Etruscan style decoration.

East wing and kitchen are currently derelict, and restoration suspended at time of survey, containing some original features, e.g., servants' stairs, fielded panel cupboards in former house-keeper's room, and 2 large segmental-arched fireplaces in opposed walls of kitchen.

2. GENERAL BUILDING CONSTRUCTION

Basement Area

The building comprises of a part basement area which includes a central corridor with a brick vaulted ceiling and chambers either side to access the suspended timber ground floor. In this area the walls are of brick construction with exposed brickwork throughout.

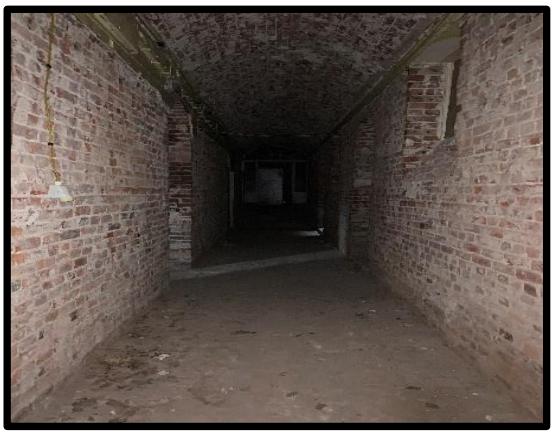




Ground Floor Area

The ground floor comprises of a mixture of solid flagstone floors and suspended timber floors. The various rooms have been finished to a range of standards.

The majority of rooms have deep skirting boards, plaster dado and picture rails and deep ornate cornice details. It should be noted that one wing of Heaton Park Hall has suffered extensive fire damage (West Wing) and Bakery Building with exposed brickwork and exposed timber joists.





The ceilings in all areas are of lath and plaster construction. One wing (East Wing) of the ground floor is known as the orangery. This wing is of single-storey construction with a flat roof. All services within this area are exposed with cables clipped direct.

First Floor Area

The first floor generally comprises of two wings. The first wing is of ornate decoration with deep skirting boards, plastered dado and picture rails and ornate cornice. This replicates the ground floor main areas.



The second wing is a space that will have been originally given over to children and staff. This space has a much lower floor-to-ceiling height with limited decoration, comprising only of shallow cornices. The ceiling in all areas is of lath and plaster construction and generally this wing requires considerable refurbishment and reinstatement.





The first floor is generally of chamber construction, except the main stair core which is of wrought iron construction with a flag finished floor. The chamber construction comprises of floorboards which are pinned together using timber dowels with timber joists below and then cross batons beneath the timber ceiling lath and plaster.

Roof

The roof is of traditional slate tile pitch construction comprising of pearling's supported by masonry, with roof spas fixed directly to the pearling's to form the apex roof construction.

Initial examination has revealed that the roof void does not benefit from extensive thermal insulation and was found to be in an untidy state of repair. This space, however, will prove beneficial for the routing of electrical services to supply the first-floor area.







Hatch opening above library



Hatch opening above library



Void above music room



Hatch yellow bedroom

3.0 KEY PRINCIPLES ON WORKING WITHIN THE HALL

The Principal Contractor shall include in his tender submission the costs of carrying out all works in line with complying with the below listed key principles of working at Heaton Hall set by MCC Lead Planning Officer the key principals are as follows.

- All equipment and wiring will be of the type to be sympathetic to the Grade 1 listed building, the client and conservation officer will be consulted throughout the design and installation process.

- Permissions as required from MCC Planning Department, Conservation Officers, Building Control, Historic England, and Georgian Society will be sought as required for the works prior to any works being commenced on the building.

- All works will be carried out by contractors with experience of working on listed buildings and a record of completing works to a high standard.

- Any building works (including floor void access) will be carried out by suitably qualified and specialised tradesman again with experience of working on listed buildings.

- Existing plaster should not be chased/removed to install as a flush installation listed building officer would rather have installation and accessories clipped surface and which can be easily removed in future rather than intrude on the building fabric

- New electrical outlets should be surface mounted or flush within the skirting board if existing outlets have already been installed in the skirting board

- Electrical cables will be best suited for key areas/rooms are to be bare MICC cable painted to match existing finish paint finish. Listed building office expects limited amount of MICC cabling to be seen and careful location of sockets, intruder alarm detectors etc. will need to be agreed

- Contractor's plant and equipment shall be suitable to use in a Grade 1 listed building having both vibration and dust control and screening protection where decorative and historic paintings and artefacts are present.

- Contractors shall include to supply and install hard protective flooring on up to four rooms at a time and additional dust layer where mobile scaffolding are to be used in the ground and first floor areas. All scaffolding shall have catch fans or safety nets to ensure nothing falls from height onto the artefacts or flooring. **Note** MEWP's will not be allowed on site without the contract administrator approval.

- Video/Photographic evidence shall be recorded by the principal contractor prior to works commencing and after works are completed – All media/photos to be signed off by contract administrator

4. BUILDING AND ARTEFACTS PROTECTION

4.1 Protection of Artwork and Artefacts

The existing building houses a number of artefacts which, if not protected, will pose a risk during the rewiring works in relation to potential damage. These artefacts range from statues to pieces of furniture.

It is proposed that a detailed audit is undertaken on a room-by-room basis in order to determine the type of artefact and a strategy in relation to conservation. The City Council Art Gallery Artefact team will remove all smaller items of artwork and artefacts and store in secure building elsewhere within the city.

Note – MCC Art Gallery Team have yet to complete the survey/audit and confirm their procedures and action to be taken by the principal contractor.

It is proposed that large heavy items such as statues, are enclosed within timber frame stud work complete with ply board finish to provide protection during the works. An example of this can be seen in the Orangery and is detailed in the photograph below:



The following photograph shows a typical statue that would require protection.



The ground floor main areas include a number of wall-hung paintings. It is proposed that prior to these works, these paintings are removed from site and stored elsewhere by MCC. **Note** - Awaiting MCC advice and confirmation

There are, however, a series of paintings that form part of decorative ceiling friezes. It is proposed that these paintings are covered to protect them from dust damage. In addition to this, the location of these paintings will require mapping on the above floor so that floorboards in this area are not removed and it is designated as a sterile zone in relation to the routing of cabling systems. Concept needs to be agreed and developed with MCC conservation surveyor and Historic England.



4.2 Removal of Floorboards

Within Heaton Park Hall, there are a number of types of floor boarding systems ranging from wide to narrow floorboards. Upon examination, it has been determined that the existing floorboards are pinned together using timber dowels.

Where floorboards need to be removed, it is proposed that the removal of these boards is undertaken in line with the Historic England guidance relating to the removal of this type of flooring system. This involves a narrow cut into the existing timber dowels, allowing the floorboards to be removed.

However, it was also noted during survey that existing floorboards have been removed in many locations. It is proposed to initially map the locations where floorboards have been removed so that cable routes can be selected which will allow these floorboards to be removed and replaced again, thus minimising damage to floorboards that have never been removed.

This is in line with the CIBSE guide to ‘Building Services for Historic Buildings’ recommendations.

The following photograph shows a partially removed floorboard complete with a timber dowel.



Note

- The intrusive survey by the contractor to ascertain all best proposed and risk adverse cable and containment routes has been undertaken over a 5–6-week period. The contractor has confirmed that no new floorboards will have to be taken up as the existing boards already taken up previously will be sufficient to install the required circuits – All existing loose boards will be referenced

4.3 Routing Cabling Systems within Chamber Voids

The chamber voids comprise of timber joists with cross battens beneath them to which the ceiling lathes are fixed. This cross-batten arrangement provides a cable route where cables can be routed across the path of a series of timber joists. The result of this is that the timber joist will not be required to be drilled.

Where cables are routed parallel to the timber joists, they shall be clipped direct and segregated from band one and band two type by a minimum of 300mm.

The following photographs shows the construction within the chamber void.





4.4 Routing Behind Skirting Boards

Generally, the new MICC wiring is proposed to be installed as much as possible where the existing electrical wiring has been installed

It is proposed that as part of these works, the locations of all cabling that will rise from the chamber floor in front of the skirting boards (as a surface installation) to accessory positions will be identified. These locations will be identified on a separate pack of builders works drawings.

Electrical cables will be best suited for key areas/rooms are to be bare MICC cable painted to match existing finish.

Note – Intrusive survey has confirmed that no new floorboard will be removed or taken up.

4.5 Routing Cables behind the Cornice

The following photograph shows an existing cornice where the plasterwork has been removed.



It can be seen that the original wall plaster extends behind the cornice up to the lath and plaster ceiling.

In order to protect the remaining installation, we will endeavour to reuse any of the existing openings to the cornice, it is not proposed to remove any further section of plasterwork in order to remove plaster behind the cornice.

The floor above is to be removed to expose the timber lathes. It is then proposed to carefully saw the lathes so that the wireway is then provided from the chamber void behind the cornice.

4.6 Routing Behind Fibre Plaster and Dado Rail

No works will be allowed which involve the removal of wall plaster at both the top and bottom sections of the plaster dado.

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The following photograph details the plaster dado rails.



5. ELECTRICAL DESIGN CRITERIA

The proposed engineering services described will be designed in accordance with the following: -

- Construction Design and Management Regulations
- CIBSE Guides and Technical Notes
- Department for Education Guides
- Building Regulations
- Water Regulations
- Gas Safety Regulations
- BS 7671 IET Wiring Regulations 18th Edition
- BS 5839 Fire Alarm Systems
- DfE Annex 2G: Technical Annex 2G: Electrical Services, Communications, Fire and Security Systems
- BS 5266 Emergency Lighting Systems
- BS62305 Lightning Protection
- G14 Designing and Planning Laboratories – CLEAPSS May 2009
- CIBSE Code for Interior Lighting
- SSL LG 05 – Lighting for Education.
- DfE Annexe 2E – Day light and Electric Lighting
- BS EN 50131 British Standard for Intruder Alarm Systems in Buildings suite of standards
- BS 8473:2006 European Standards for Intruder Alarm Systems

And all relevant regulations and British Standards.

The design philosophy will be to specify good quality, low maintenance equipment that is readily available and ensure the final scheme is energy efficient, cost effective and complies with Historic England and MCC aspirations.

The following environmental conditions and design criteria are to be used:

Lighting: -

Stately Rooms	200 lux
Bed Rooms	150 lux
Plant Room and Server Rooms	200 lux
Store Rooms	100 lux
Staff and Admin Areas – Working Offices	200 lux
Libraries/Study Rooms	200 lux
Exhibition Rooms	300 lux
Circulation areas	100 lux

Exterior Lighting: -

Walkways (pedestrians) and Security	5 lux
Traffic and Parking Areas	10 lux
Pedestrian passages, loading areas	50 lux
Temperature in key stately rooms	2700-3000

Note - Some of the rooms with the decorative historic luminaires may not have the capability of providing the lighting levels to meet the CIBSE guidelines and these will be noted.

Emergency Lighting: -

Open Areas	0.5Lux on empty floor excluding 0.5M wide perimeter margin
Defined Escape Routes	1.0Lux minimum design value on the floor along the centre line
High Risk Task Areas	Minimum 10% of maintained illuminance on a reference plane but at least 15Lux

Fire Alarm: -

Category	L1/P1 which provides for Automatic Fire Detection (AFD) to be installed into all areas of a building.
Audibility	65 dBA General areas

Intruder Alarm: -

Grade 3	Premises of a higher risk of an intruder or theft due to valuables kept theft on site

PASSIVE AND SUSTAINABLE SYSTEMS

These measures relate to the conservation of the building energy demand and to its subsequent carbon dioxide emission. Passive measures relate to none building services solutions that aim to reduce the building energy demand. These typically include greater levels of thermal insulation resulting in reduced energy demand and subsequent reduction in carbon dioxide emissions.

In consideration of Building Services systems there are also passive choices, this relates to the specification of more efficient requirements, e.g., boilers or Led luminaires. These again reduce energy demand and carbon dioxide emissions. We are proposing to install energy efficient LED lighting with controls in all of the rooms in Heaton Hall.

6. PROPOSED ELECTRICAL INSTALLATION & METHOD OF WIRING AND CONTAINMENT

The Hall, as described above, is a three-story masonry constructed building and consists of four key areas that are of various different levels of building condition and its environment. Each area will require different type of installation and care. The areas are:

WEST WING AND BAKERY BUILDING

This area was the location of the Hall's main kitchen, garden café and a number of large storage areas. The building suffered extensive fire damage in the 1960's which currently still has the exposed brickwork and timber joists.

Electrical Installation Proposal

It is proposed to treat this area as a temporary installation until funding is found to bring the area back to its previous historic condition and use. As part of the electrical life safety & security improvement works this area will have the following new installations.

a) IP65 general LED bulkhead lighting providing amenity lighting with integral absence detection and self-contained emergency lighting will be provided in key areas such as circulation routes and in rooms that have both fire and security detection which will require servicing throughout the year to provide improved health and safety compliant access for the maintenance contractor
b) Small power installation general IP65 RCD socket outlets in corridor areas
c) Addressable Fire Alarm system and devices linked back to the main panel located in the centre block
d) Intruder Alarm Installation covering all key areas of security and known risks of entry

Note- The client has recently carried out a Wi fi survey to outline the options to provide a full and comprehensive WLAN connection to both the Hall and Orangery which will require Cat 6 cables being installed throughout both buildings This will require consultation with MCC planners and the Heritage Architects.

The method of wiring and containment in the West Wing will be as follows.

- FP200 Red cable installed in galvanised cable basket and clipped on timber joists and protected by galvanised conduit droppers on bare brickwork
- FP200 White for general lighting which are surface mounted installed in galvanised cable basket, clipped on timber joists and protected by galvanised PVC conduit droppers on bare brickwork
- FP200 White for general power serving the IP65 RCD controlled sockets outlets which are surface mounted installed in galvanised cable basket, clipped on timber joists and protected by galvanised PVC conduit droppers on bare brickwork
- Intruder Alarm cable will be screen alarm cable duct grade BS4737-3.30 as Type 2 but PE sheathed installed in galvanised cable basket and clipped on timber joists

Note - All fixings on the bare brickwork shall be in the mortar not the brickwork

Note – The need to allow appropriate segregation of associated types of cable installation particular fire, intruder & data and electrical mains cables requires the installation of galvanised basket/tray on the main corridor routes of these areas.

CENTRAL BLOCK

This area is the location of many of the key rooms and ornate design of the building with the majority of rooms having deep skirting boards, plaster dado and picture rails and deep ornate cornice details particular the lighting.

Electrical Installation Proposal

It is proposed to treat this area as a high-risk area on the management and delivery for the electrical installation and protection of the historic part of the building and associated artefacts. As part of the electrical safety improvement works, this area will have the following new installations:

- Heaton Park Hall benefits from a number of ornate luminaires. These vary from ceiling hung chandeliers to uplighters incorporated into the wrought iron steel balustrades forming part of the grand staircase. It is proposed as part of these works for these luminaires to be removed from site, rewired, and refurbished with LED lighting. We have included for the historic ornate luminaires to provide emergency lighting facility through a static inverter installation
- New historic LED luminaires will be installed in a number of areas which are suitable for the building period but with have integral 3hr emergency facility and PIR absence detection
- Small Power Installation generally 2No dual socket outlets in each room, with fixed supplies to power supply units for the fire safety and security systems **Note** – if Risk of any damage to the building, artwork, artifact etc. is too high then reduced and no power outlets will be installed (e.g. Cupola Room)
- Addressable Category L1 Fire Alarm system and devices linked back to the main panel located in the centre block main office The system will be a hybrid using hard wired and wireless integration to remove areas of installation in ornate areas
- Intruder Alarm Grade 3 Installation covering all areas of security of the internal rooms and externally the roof area which have known risks of entry
- CCTV system and cameras covering the main central and east wings of the building particularly the ground and first floors rooms. The devices are small I.P turret type cameras that can be ceiling or wall mounted and are powered P.O.E.

The method of wiring and containment in the Central Wing will be as follows.

- General Lighting – mixture of bare MICC cable and FP200 White cable installed in galvanised cable basket, under floor boards, above ceiling voids, clipped on timber joists and protected by galvanised trunking where cable drops down to distribution boards on bare brickwork
- General Power – bare MICC cable installed in galvanised cable basket in agreed risers, under floor boards, in ceiling voids and clipped on timber joists and skirting boards using the existing locations where possible not to damage any further existing fabric
- Fire Alarm Installation - FP200 Red cable installed in galvanised cable basket in agreed risers, under floor boards, in ceiling voids and clipped on timber joists
- Intruder Alarm cable will be screen alarm cable duct grade BS4737-3.30 as Type 2 but PE sheathed installed in galvanised cable basket and clipped on timber joists
- CCTV – Cat 6 Cables clipped surface

Note - All fixings on the bare brickwork shall be in the mortar not the brickwork

EAST WING

This area is the location of a number of the key rooms with ornate design of the building with the majority of rooms having deep skirting boards, plaster dado and picture rails and deep ornate cornice details which shall be treated as the central block

There is a (small wing on the first floor) that has been originally given over to children and staff and is in generally poor state and in need of detailed refurbishment and conservation and weather protection works. This space has a much lower floor-to-ceiling height with limited decoration, comprising only of shallow cornices. The ceiling in all areas is of lath and plaster construction and is in poor condition and in need of repair.

Electrical Installation Proposal

It is proposed to treat this small first floor area as a normal historic installation similar to the main central wing and provide a reduced number of power outlets until the building improvement works funding for this area can be found, the area will have the following new installations.

a) Single suspended globe LED luminaire providing amenity lighting with integral absence detection and self-contained emergency lighting will be provided in all areas of this first floor wing
b) Small Power Installation - generally a single dual surface mounted socket outlets in rooms and corridor areas, 13amp DP switch spur units for small number of Dimplex panel heaters to provide some form of heating to reduce the dampness in certain rooms
c) Addressable Fire Alarm system and devices linked back to the main panel located in the centre block
d) Intruder Alarm Installation covering all key areas of security and known risks of entry

The method of wiring and containment in the east wing first floor will be as follows.

- Lighting – Bare MICC or FP200 White cables installed in galvanised cable basket, below floor boards, above ceiling voids and in galvanised conduit or trunking where vertical drops are required
- General Power - Bare MICC cables installed in galvanised cable basket, below floor boards, above ceiling voids and in galvanised conduit or trunking where vertical drops are required for the general socket outlets
- FP200 Red cable installed in galvanised cable basket and clipped on timber joists and protected by galvanised conduit droppers on bare brickwork,
- Intruder Alarm cable will be screen alarm cable duct grade BS4737-3.30 as Type 2 but PE sheathed installed in galvanised cable basket and clipped on timber joists

Note - All fixings on the bare brickwork shall be in the mortar not the brickwork.

ORANGERY

The building is located as part of the east wing of the ground floor and was previously a Café and training centre for Manchester City Council with both catering facilities. This wing is of single-storey construction with a flat roof. All services within this area are currently exposed with cables clipped direct. As part of the electrical safety improvement works this area will have the following new installations.

a) New electrical sub mains cable and local electrical distribution boards are to be provided with a suitable electrical load assessment for a new Café and catering development in the future. No general lighting, emergency lighting, general power, CCTV, PA, and Data systems are to be installed as part of the electrical safety works
b) Addressable Fire Alarm system and devices linked back to the main panel located in the centre block
c) Intruder Alarm Installation covering all key areas of security and known risks of entry

Note – Note - The Orangery building will be completely rewired with new internal scene lighting, external lighting, emergency lighting, small power fire alarm & intruder alarms, CCTV, and all associated wiring to mechanical plant as a separate project - however, with the same principal controller and design team carrying out the works.

7. MAIN INCOMING ELECTRICAL SUPPLY

The building has a HV transformer and associated switchgear located in the switch-room in the basement of the west wing, the ownership of the equipment is currently unknown, ECS have been requested to contact Electricity Northwest to ascertain the ownership of the transformer and HV switchgear.

From the transformer there are several meters which supply the Main Hall, as well as other buildings and power supplies in Heaton Park. The main electrical incomer serves a four-pole bus bar chamber controlled via 300amp TP&N HRC fused switch. The switch room is in poor condition and is damp, this has had a detrimental effect on the metering equipment which is in poor condition and corroding.

The proposal will be to remove all existing meters that are now not required and install a complete new electrical distribution system.

8. SUB MAINS CABLE AND CONTAINMENT DISTRIBUTION INSTALLATION

The existing electrical services to the main house comprise of a 60 kVA 100-amp TP+N supply that is routed from elsewhere via a PVC/SWA/PVC sub main cable to a 100-amp TP+N MCB distribution board. This is located within the basement area.

Emanating from this are various sub main cables to supply various distribution boards of differing ages and conditions throughout the building.

This ranges from MCB protection systems and both rewireable fuses. The final circuitry ranges across various installation methods and types of cabling, however this is predominantly bare MICC cables which are mainly clipped direct to the surface.

The installation has been extended and adapted from the 1960s but it is noted that more recently, works have been undertaken in the basement area. This mainly comprises of 6491B singles cables drawn through a system of galvanised steel trunking and conduit.

NEW PROPOSAL FOR SUB MAINS WIRING INSTALLATION

It is recommended that no part of the existing electrical wiring systems can be salvaged - (except in part for the basement plant wiring systems) and that the complete installation is removed and replaced. All sub mains cables shall be wired in XLPE/SWA/LSF cable installed on cable basket and/or clipped directly on walls. Final circuits shall be as described above to each of the key areas.

9. GENERAL LIGHTING INSTALLATION

Heaton Park Hall benefits from a number of ornate luminaires. These vary from ceiling hung chandeliers to uplighters incorporated into the wrought iron steel balustrades forming part of the grand staircase.

It is proposed as part of these works the luminaires are to be removed from site or worked upon on site within a secure workshop, rewired and refurbished.

ECS Consultants will request a project team to be introduced and officers from the City Council officers including the listed building engineer/consultant, the main client and ECS to review the two lighting specialists' proposals in terms of historic refurbishment detail, selection of new luminaires to meet the age and design of the building, experience, delivery, and costs. **Note** MCC project team still to be developed and agreed

In consideration of lighting controls, it is noted that switches are not evidenced in most areas with grid switches being used in back of house areas. ECS will provide options in relation to lighting control systems, either centrally or on a room-by-room basis.

It is proposed that in parts of the works particular new decorative luminaires, lighting control may be installed which incorporates scene management or/and presence detection.

Wiring is likely to be in bare MICC in the main house, FP200 (white) in the basement and fire damaged wing and in the first-floor servant's wing where the building has deteriorated quite badly and will require refurbishment and weather protection in either FP200 (white) or 6242B LSZH T&E in galvanised trunking as a temporary solution.

10. EXTERNAL LIGHTING INSTALLATION

We are proposing to install new external floodlighting to the front and rear elevations of the building using the existing positions of previous 2000 lighting locations within the grass verges on both sides of the building. New ducting and excavations will be required with a concrete structure required to protect each floodlight from any vandalism.

The Colour Glide Flood brings a powerful and versatile flood light solution with auto addressing DMX control and two beam angles. Offering over 5000 lumen output and beam angles of either 40×40° or 8×8°

The Colour Glide Flood allows architectural features to be effectively highlighted in range of colours creating exciting effects which can be easily and quickly adjusted to suit any event or theme. Coloured lighting has become commonplace in urban environments worldwide with

exterior floodlighting, spotlighting, wall washing, or grazing as landowners and governments seek to create excitement and interest in our public spaces.

The Colour Glide Flood fills this niche with a cost effective, high lumen output RGBW floodlight. The flood is supplied with die cast aluminium housing, external RAL 9006 Grey paint finish, toughened glass cover with lensed optic and adjustable saddle bracket, these design features combine to ensure quick and simple installation, effective performance, and excellent longevity.

11. EMERGENCY LIGHTING INSTALLATION

It is noted that Heaton Hall currently does not have any existing emergency lighting, escape route lighting and signage installed in the building apart from a number of a number of mobile photo luminescent (glow-in-the-dark) signage that are placed in key areas of the building when it is open to the public

It is proposed to provide emergency lighting integrated with the general lighting system in the basement, fire damaged wing, corridors and staircases in the main house and will fully comply with BS 5266 Part 1 1999 (Code of Practice for Emergency Lighting of Premises), Health and Safety at Work Act 1974, Fire Precautions Ref. 1971 and The Building Regulations approved Document B and be arranged to operate for 3 hours duration upon mains failure.

In addition, exit signage will also be specified with emergency lighting luminaires also located to the basement, fire damaged wing and corridor areas that have no decorative ceilings

Testing of the emergency lighting shall be carried out utilising key switches which are to be installed in the electrical cupboards adjacent to each distribution board.
These are secret key switches engraved EM Lighting.

We are proposing to install Rieollo static inverters to supply all the decorative and historic chandeliers and luminaires which are being refurbished and reinstated. Static Inverters are virtually the same as a UPS system except they are configured to operate in 'active standby' mode with the bypass supplying the load during normal conditions. When a mains failure occurs, contactors are used to transfer to inverter with the standby batteries then supporting the load (typically for 1 hour or 3 hours depending on application).

This type of product is generally used in emergency lighting applications, offering efficient back-up with reduced running costs, although provides no filtering or protection for more sensitive loads such as computer equipment (which will not be included in the circuits generated by the inverters).

Emergency Lighting Escape Route Signage

We are proposing not to install any escape route signage lighting units in the historic part of the main building where the rooms have decorative walls and ceilings particular on the central and east block ground and first floor rooms but will install new photo luminescent (glow-in-the-dark) signage in these areas

In all other areas of the building such as the basement, the burnt-out damaged wing, staircases, large corridor areas and ground floor exhibition room new emergency escape route signage in accordance with BS 5499 Safety signs code of practice for escape route lighting and BS EN ISO 7010 Graphic symbols safety colours and safety signs –

registered safety sign will be installed with the appropriate directional arrows in line with BS5499 escape route signs (meaning and use of graphical symbols with directional arrows).

12. GENERAL POWER INSTALLATION

It was noted during survey period that many areas do not benefit from any small power. It is proposed as part of the development that all rooms have a small number of socket outlets each room having its own ring main circuit to provide future expansion It is proposed that all cabling to the socket outlets shall be, and small power accessories are installed surface on the fabric of the building installed in a discrete manner throughout the building.

Types and locations of socket outlets will be highlighted on drawings for final approval be Manchester City Council officer before Tender drawings are finalised.

Filming Supplies

It is noted in the brief that there is requirement will be to provide provision for industrial type socket outlets to be used for location filming.

It is proposed that the scheme provides a number of these outlets within the basement area and upper floor storage areas. This will allow set rigging companies to route extension cords to the appropriate areas.

13. FIRE ALARM INSTALLATION

Heaton Hall

Heaton Hall will be provided with a new Category L1 fire safety system managed by a 6500 Open Protocol Fire Alarm control panel, using Protec's range of multi sensor devices to all areas. The system is to be hard wired with the exception of manual call points which will be wireless using a range of wireless translator modules and devices creating hybrid communication via radio technology. A full test on the wireless capability of the hall has been undertaken and only the areas with full signal strength has been selected to use the wireless technology.

The 6000PLUS/OPHTCO/S sensors that will be provided within Heaton Hall allows total confidence that when initiated, there really is a fire threat. The sensor incorporates infra-red light scattering for smoke detection, with thermal enhancement of the optical sensitivity, temperature detection equivalent to grade A2, and a third channel incorporating a carbon monoxide (CO) sensing element (future planning if chimneys are reopened).

The combination of optical smoke, heat, and carbon monoxide gas sensing technology within one fire detector head provides the ideal solution. The sensor can now detect free burning chemical fires, fires producing smoke and low levels of CO and heat, to deep seated smouldering fires, which produce little heat and smoke but large amounts of CO. Combining the results from all sensing channels enables rapid fire detection with rejection of false alarms and increased sensor reliability.

The 6000/PLUS/OPHT sensors will also be provided within Heaton Hall. This dual technology multi-criteria fire detector uses detection of smoke by scattering of infra-red within the optical chamber coupled with thermal enhancement of the optical sensitivity, as well as providing temperature detection equivalent to grade A2. The smoke and heat channels can be controlled independently for day/night operation with intelligent data being

evaluated by the Protec Algo-Tec™ 6000 interactive programmable algorithms. These sensors react across the range of fire products from large visible particles from smouldering fires to open flaming fires producing very hot smaller particles and are therefore suitable for use in all smoke detection applications. The environmental conditioning algorithms can be selected to filter unwanted alarms and enhance performance.

The 6000/WLS/HLI translator will be used to create hybrid communication between the wireless devices and the 6500-control panel. The 6000/WLS/HLI Translator Module is one of the core components of the Protec intelligent hybrid fire detection and alarm system. When connected on to a compatible loop, the unit is capable of linking up to 32 fully intelligent wireless field devices with the fire alarm system. The translator allows fully intelligent and seamless integration of the wireless devices alongside standard wired devices or can be used independently to form completely wireless systems. Using well-proven wireless technology and a patented orthogonal antenna design ensures the highest levels of life safety and system reliability.

The Orangery

The Orangery will be provided with a new 6500 Open Protocol Fire Alarm control panel, using Protec's range of 6000/plus devices to all areas. This fire alarm control panel will be stand-alone signalling common fire and fault signals to the Heaton Hall 6500 Control Panel via Interfaces.

Fire Alarm Stables / Café Facility

We have reviewed the existing control panel at the stables particularly future proofing of providing communication to both the stables and Heaton Hall to provide improved monitoring by the Park's Division Due to the obsolescence of the existing 6300 Fire Alarm Control Panel the proposal is to include to upgrade the existing control panel to a fully Open Protocol 6500 System. The existing loop field wiring, 6000/plus loop devices and the current C&E / programming shall remain the same and set to work on the new 6500 control panel. The 6500-control panel shall have the facility to link to the proposed Heaton Hall for fire and fault signal, this will be either hard wired or via IP Interfaces (TBC).

Power Supplies

Standby battery and battery chargers will be provided & housed in a wall-mounted purpose-built steel enclosure. Batteries will be of the low maintenance sealed lead acid type, trickle charged via an automatic constant voltage charger unit.

Standby Period 72 Hour.

Alarm Period 30 Minutes.

14. INTRUDER ALARM INSTALLATION

It is proposed to rewire the existing intruder alarm system specifying a series of grade 3 anti-mask detectors/sensors rather than the shock sensors that are currently fitted to windows. This will allow cabling systems currently installed in an untidy fashion to these windows to be removed and cabling to movement sensors will be installed flush within the fabric of the building.

The new intruder alarm has been designed to Grade 3 which covers premises which are deemed to be at substantial risk from intruders due to high-value contents. We are proposing to install the Pyronix TMD 15, Grade 3 type Anti-mask detector which provides 15m of volumetric coverage in both PIR lenses and is ideal for this application and hostile environments.

This means we only need to install one detector in most areas, to give dual sequential confirmation alarm. Cutting down the number of cables installed and the installation of window alarm contacts on the shutters resulting in an improved installation to the historic internal areas of the building.

The two independent detectors within the one housing featuring non-overlapping fields of view with sequential confirmation. Dual Technology (DT), Passive Infra-Red (PIR) on a single activation would notify key holders, on a sequential alarm it would notify key holders and the police.

The roof detection

We are proposing to install outdoor ready network radar detector (AXIS D2110-VE Security Radar) on the roof security This outdoor-ready network radar detector from Axis utilises advanced radar technology to provide reliable breach protection, it is intended for monitoring open areas. The device delivers accurate, round-the-clock incident notifications in all weather conditions with extensive 180° horizontal area coverage. It also features built-in analytics and smart coexistence functionality, as well as PoE-out support which enables the powering of additional devices.

Radar detector

An ideal complement to your surveillance system, the versatile unit offers a 180° horizontal detection coverage. It also has a range of up to 60m when detecting a person or up to 85m when detecting a vehicle. Designed to solely detect movement round-the-clock, the detector is not sensitive to interfering movements that can often trigger false alarms - such as moving shadows, light beams, small animals, or bad weather conditions.

Video analytics

Featuring built-in analytics developed based on machine learning and deep learning techniques, this advanced unit is able accurately detect, classify, and track people and vehicles with a low false alarm rate.

Video management

Users can easily integrate this versatile unit into an existing CCTV surveillance system, or it can be used as a standalone unit. Based on an open platform, this network radar detector is compatible with a range of professional video management software such as a cloud-based solution can also be implemented through the Morphean Cloud CCTV platform.

Installation

The unit can be used alone or use the smart coexistence functionality to use multiple radars close to each other. For instance, users can mount two radars back-to-back for complete 360° coverage. As well as PoE support for simplified installation, this intelligent device also

features PoE-out for powering another device such as a camera for visual verification or a speaker for deterrence.

Key features & benefits:

- Advanced network radar detector provides reliable breach protection in all weather conditions – 24 hours a day
- Offers wide area coverage with 180° horizontal beam and up to an 85m range
- Not sensitive to ‘interference’ objects such as shadows or small animals - resulting in reliable detection with a lower false alarm rate
- Built-in analytics enables accurate detection, classification and tracking of people and vehicles
- Open platform to allow straightforward integration with Axis Camera Station and other professional VMS suites
- Edge storage provides a backup of data in the event of a network connection failure
- Smart coexistence functionality enables the use of multiple radars in close proximity
- PoE supplies power and network connection over one cable for quick and cost-effective deployment
- PoE-out enables the radar to power another device such as an IP camera or speaker sold separately) for visual verification and deterrence

14. CLOSED CIRCUIT TELEVISION (CCTV) INSTALLATION

We are proposing to install Hanwha Wisenet IP range cameras reference (CAM M/PIXEL D/N IR 5MP 4mm IR 20) in the main building ground and first floors key areas The device is small I.P turret type cameras that can be ceiling or wall mounted and are powered P.O.E. We have included for a number of P.O.E switches to be located at each side of the building to allow ease of installation and additional cameras at a later date. The 32-channel network video recorder can be connected to a router can be viewed remotely.

Cables will be installed discreetly on edges of widow frames, where existing CCTV and intruder alarms cables have been installed previously and in areas such as underfloor boards, stores, and cupboards to hide the cables before they enter into the main rooms on a back-to-back installation.

15. DATA & Wi FI INSTALLATION

Currently we have been working with Manchester City Council to ascertain if any new data, Wi-Fi, and fibre installation works are planned for the hall in the next 12 months. Confirmation has been provided by the council that funding may be available in 2024 and a detailed Wi fi survey to outline the options to provide a WYLAN connection to both the main house and orangery has been carried out.

We have requested the client to confirm if they wish the IT improvement works to be included.