Introduction & Context

2.1 Introduction & Purpose

This document sets out the findings of the Condition & Feasibility Study for the existing building at The Courtyard Building, to respond to the requirements set out in the London Borough of Camden (LBC) Energy Efficiency & Adaptability Camden Planning Guidance (EEA CPG) Chapter 9. This document is provided in response to a request from LBC's sustainability officer at the sustainability pre-app to provide further evidence of our workflows and analysis of the existing building ahead of the application for the new proposal for the site. Much of this work had taken place ahead of any decision to alter the existing building on site.

This document therefore follows the sequencing of the condition and feasibility study requirements set out in paragraph 9.4 of the EEA CPG. Each query and line item is addressed in turn, with additional information added where necessary to provide further evidencing of existing building condition and feasibility for potential reuse.

It should be noted that the intent of the Applicant was never to embark on a process for justifying full demolition and redevelopment of the site. Where possible, our core strategy is to reuse parts of the existing building wherever we can, particularly the structure and facades, and taking into account the requirements of the conservation area and the historic nature of the existing building, particularly its façade systems.

To deliver a working, sustainable development on this site the Applicant believes that we need to consider:

- Joining the existing buildings under ownership in a more sensitive manner than was undertaken in 1999 as part of the extension.
- Resolving inherent access issues and different building levels.
- Sensitively repairing and upgrading the existing fabric where possible (facades and roof).
- Improving the street frontage.
- Providing better options for sustainable travel including cycle spaces and facilities.
- Improving site biodiversity.

This report therefore aims to provide a more detailed review of the condition, compliance and materiality of the existing building at The Courtyard Building to inform decision-making on opportunities for retention and reuse, using the EEA CPG chapters as a guide for setting this out in a consistent way. Information has been gathered from a number of reports and surveys that have been commissioned and undertaken to assist in our understanding of the existing building and its particulars.

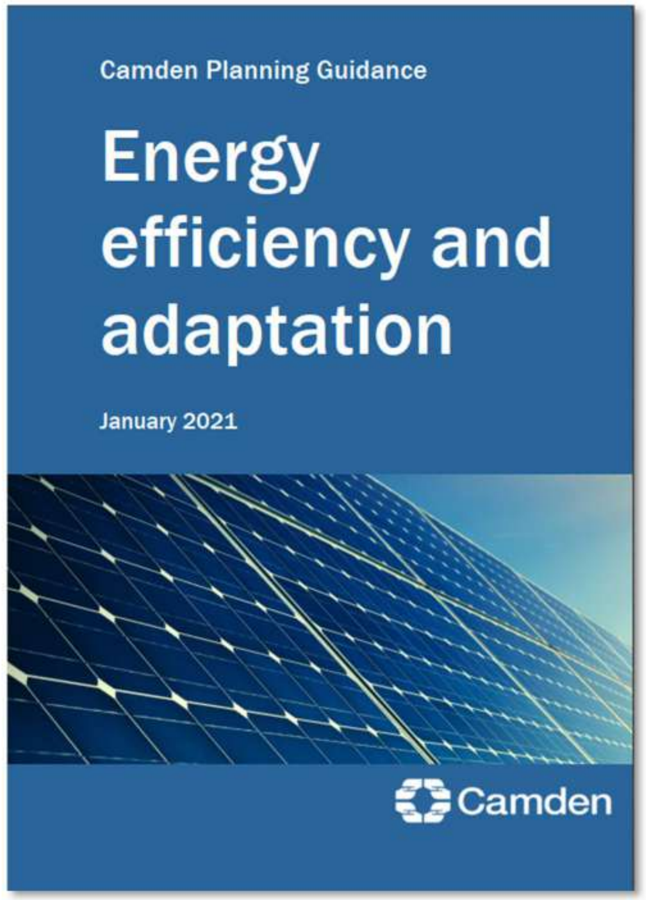
2.2 London Borough of Camden Policy

As noted in Section 2.1, the key review document for the Condition & Feasibility Study is the EEA CPG Chapter 9. Paragraph 9.4 of this document provides a list of key considerations to be addressed when considering the viability and opportunity for reuse and repurposing of an existing building. LBC note that:

"Retaining the resource value embedded in structures is one of the most significant actions you can take to reduce waste and material consumption."

The Condition & Feasibility Study requirement also links to Policy CC1 of the Camden Local Plan (2017), which states that LBC will require:

- All proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building.
- All developments to optimise resource efficiency.



Condition and feasibility studies (to understand the reuse potential of the existing building/s)	
Existing building uses	• How well does the building function? Identify operational positives/negatives. • Existing user surveys (if occupied) to understand what works / or doesn't work • If the building is not occupied have other options for reuse been explored?
Servicing	• Summary of MEP (Mechanical, Electrical, Plumbing) servicing, thermal performance and efficiency for each building component. • Identify remaining lifespan of plant and discuss pros/cons of plant upgrade.
Technical: review, with evidence and photos, of existing building, based on intrusive survey.	• Upgrades required to comply with current legislation • A material inventory audit, including an estimate of embodied carbon • Scaled section drawings showing slab depths, floor to ceiling dimensions etc. • Loading capacity of structural frame, materials strength, pile testing • Energy performance of the façade • SBEM (Simplified Building Energy Model) energy modelling • Details of Air Tightness, thermal bridge modelling and condensation analysis in exploration of limits to fabric upgrade in existing building • Future projections for carbon content of electric load should incorporate latest BEIS carbon factors
Site capacity	• What is the best use of the site? And can optimal site capacity be achieved?

LBC describe the potential benefits of prioritising reuse as follows:

- Reduces the requirement for virgin materials and therefore reduces its embodied carbon impact.
- Keeps products and materials at their highest value for as long as possible.
- Maintains heritage value.
- Minimises demolition waste.
- Reduces human disruption of extensive demolition and construction works, associated noise and transport impacts, and likely impact on air quality.
- Cost and programme savings, depending on the scope of refurbishment.
- Achieve BREEAM credits.

The intent of the Condition & Feasibility Study, and the key points set out by Camden in the table included in the EEA CPG Chapter 9 (paragraph 9.4) is to:

"Inform decision-making prior to the pre-application of a scheme [and] should provide a transparent and holistic approach to assessing options that delivers the best outcome".

This report therefore follows the key themes of the EEA CPG. Table 2.2.1 below provides a guide as to where the evidence for each section can be found within this report.

Table 2.2.1: table to show where key elements of the LBC EEA CPG Condition & Feasibility Study content requirements can be found within the sections of this report.

LBC EEA CPG Category	Where it can be found within this report
Existing Building Uses	Section 3
Servicing	Section 4
Technical & Site Capacity	Section 5

Further detail and evidencing of the key sections can be provided on request.

2.3 The Existing Buildings

This section provides a summary introduction to the existing buildings, noting that much of the key information and detail is covered within Sections 3-5 as per the requirements of the EEA CPG.

The site fronts Tottenham Court Road, Store Street and Alfred Place. It is located within the Bloomsbury Ward within the London Borough of Camden. The site is also located within the Central London Area, Bloomsbury Conservation Area and Camden's Knowledge Quarter.

Both buildings (which are further separated into smaller 'blocks' of addresses as set out in Section 5.3) on the site were built around 1908 during a redevelopment of the adjoining block designed by architects Read & MacDonald. The 3 and 4 storey structures were both designed to have the collaborative function of retail and manufacturing. The gap between them in elevation on Alfred Place is currently used as an access courtyard spanned by the 1999 'glass box' extension that connects the two. The building has been operationally vacant from a number of years and an extensive strip-out has occurred prior to the Applicant taking ownership of the site.

The Site has an excellent Public Transport Accessibility Level ('PTAL') with the highest rating of PTAL 6b. There are multiple underground stations within walking distance. Goodge Street, Tottenham Court Road, Warren Street and Euston Square give the site access to the rest of London on the Northern Line, Central Line, Elizabeth Line, Victoria Line, Metropolitan, Hammersmith & City Line and Circle Line.

Tottenham Court Road provides a vital transport link between the West End and the City of London. Several major bus routes are within walking distance and a number of cycle hire docks exist within 500m of the site.

The overall plot size of the existing buildings is 1,770 m^2, and the red line site boundary is shown below in Figure 2.3.1. The existing building is not listed but is considered to be a positive contributor to the Bloomsbury Conservation Area, which has informed the decision-making around the existing facades in particular (refer to Section 5.4).

Figure 2.3.1: images of the existing buildings on site.

220-226 Tottenham Court Road

3-7 Alfred Place (on RHS of view)

The following sections summarise the key features of the existing buildings by building element, which are further expanded in later sections of this report.

Structure

There are a wide variety of building structures across the existing buildings, and these are summarised in Section 5.3 of this report in more detail, including the opportunities and risks inherent in some of the original structural materials and design. Part of the structure is from the original 1908 construction, and part from the 1999 infill works ('glass box' infill building on Alfred Place).

The structures to the different areas can be summarised as follows:

- **220-226 Tottenham Court Road:** load-bearing masonry and timber floors to main section of this building, with a hybrid of steel and load-bearing masonry with timber floors evident to the South block of this building.
- **3-5 Alfred Place:** steel/iron framing and concrete filler joist floors.
- **22 Store Street:** hybrid of steel and load-bearing masonry with timber floors.
- **Alfred Place infill building:** steel frame & composite metal deck structure, supported of existing walls from 220-226 Tottenham Court Road and 3-5 Alfred Place.

Please refer to Section 5.3 where the existing structure is interrogated in more detail.

Façade & Roof

The facades are typically reflective of the original 1908 condition and are considered to be an important part of what makes the existing buildings 'positive contributors' to the Bloomsbury Conservation Area. Their heritage value is a critical consideration in any intent to modify or enhance their performance. This is with the exception of the 1999 glass infill on Alfred Place, which looks contextually out of place and does not accord with the historic nature of the site.

There are a number of bespoke issues to consider with the existing façade specific to this site, including current performance of fabric systems, embedded structures within façade masonry, bespoke and highly details glazing units, the level of glazing on the 1999 extension and the condition of the existing systems, including failure in a number of areas. These are set out in detail in Section 5.4, with the implications of each item considered and potential mitigation proposed.

The roofs are a series of pitched and flat sections, with intermediate spaces between pitches mostly taken up with plant equipment (AHUs and external condenser heat pump systems in particular, alongside their ancillary services such as ductwork). The roofs are deemed to be in very poor condition both from a safety and performance perspective and should be considered for replacement.

Refer to Section 5.4 for detail on the façade investigations.

Internal Spaces, Finishes & Fittings

It is important to note that the existing building has been stripped our prior to the Applicant taking ownership of the site, and that the building has been vacant for some time. Therefore, much of the structure on the office floors is already exposed and very few finishes and fittings remain within the building. While this does not allow for reuse to be considered for finishes and fittings that were removed under previous ownership, this can also be seen as a benefit as much of the structure is exposed, meaning that structural investigations are more detailed and well-informed at a much earlier stage, allowing for better understanding of structure for potential reuse.

Some areas of fit out remain, such as at the ground floor entrances and parts of the infill building, but these are minimal areas and the extent of retained materials is limited.

It is understood that the upper floors were operating and commercial office space prior to their strip out and were offices of City of London for a period of time.

Figure 2.3.2: example images from across the site of typical floorplates showing the extent of retained materials after the strip out undertaken by the previous building owner.

Building Services

As with the finishes and fittings, very little on-floor services equipment remains in the building after the strip-out by the previous owner. Some plant remains at roof level, including AHUs and VRF condensers, indicating that offices had electricity-based heating & cooling. The majority of equipment is at the end of its service life, and some of the equipment found at basement level is multiple decades old. There is only one EPC that covers a small proportion of the site, which expired in 2019.

Please refer to Section 4 for further details on the existing building services systems.

Existing Building Uses

3.1 Functional Operation

As set out in Section 2, the existing building has been vacant for some time, with much of the existing interiors across the upper floors stripped out. Therefore, it is more problematic to be certain about some aspects of the building's successful functional operation. Observations from project architect EMRYS suggest the following considerations:

- 1-3 and 5-7 Alfred Place are on significantly different floor levels - connected to rest of site by the 1990s extension. Presents internal accessibility issues (see drawings and images in Figure 3.1.1).
- Mixed structural systems, with a number of key issues (see Section 5.3 for further details).
- Internal courtyard and relatively shallow floorplates present opportunities to utilise natural ventilation across some of the existing building areas.
- Surveys have identified that the roof is in very poor condition and needs replacing. Confused and constrained space that does not provide any opportunities for urban greening, accessible terracing or space for PVs (see also Section 5.4).
- Facade performance generally poor - uninsulated solid elements and glazing with a lot of architectural features and thus framing (see also Section 5.4).
- Some of the existing windows are in need of repair, as well as some of the ironmongery which has been broken and will need replacing.
- The main entrance to the building on Alfred Place is very underwhelming and could be improved.
- There are currently no end of journey facilities.
- The Courtyard at the centre of the buildings is not currently used and can be developed, with an opportunity to create inviting amenity space within the scheme.

Figure 3.1.1: drawings and site images to demonstrate the differences in levels within the existing buildings on site.

3.2 Existing User Experience

The building is not currently occupied and has not been for some time prior to the Applicant ownership of the building. Therefore, there are no existing users for the main floorplates to review how they use and access the building. The building was previously owned by the City of London and was likely used as an office space at higher levels, although it has not been occupied in some time.

At ground floor and basement level there was previously a large retail unit (DFS), which within the context of Tottenham Court Road, may support a proposal to maintain this use and divide the space into multiple smaller units. The same is true of the corner of Alfred Place and Store Street where there is currently a restaurant unit (Busaba) at ground floor and basement. A future scheme could propose to maintain this unit as retail/restaurant, which may help to activate the frontages at ground floor.

3.3 Other Reuse Options

As is evident from this report, there are certain works that will need to take place to ensure that The Courtyard Building remains a viable office location within the current market context, particularly associated with energy and sustainability considerations. These are key for the modern office tenant. However, the location of the site within the Bloomsbury Conservation Area and the heritage value of the facades in particular are also key considerations for any opportunities for reuse.

All options for development should start with a presumption for maximising reuse, and as set out in Section 5 there is string potential for reuse of existing structure in particular. Reuse of the existsing facades is more complicated, informed by both the need to improve energy performance and the need to retain heritage value, alongside more detailed investigations of risks and opportunities for enhancing the existing façade, as set out in Section 5.4.

Servicing

4.1 Existing MEPH Summary

The majority of MEP systems within the building have been stripped out prior to Applicant ownership of the building (refer to images in Section 2 for detail) and therefore it is not possible to determine exactly what systems might have been in place for the building of office floorplates in particular.

Some central plant remains in the building at roof level and at basement, as well as minor elements of distribution pipework within risers and on floorplates. The following plant equipment could be observed on site through project team site visits:

- VRF condenser units at roof level.
- AHUs at roof level.
- HV/LV equipment within basements.
- Commercial-scale boilers at basement level.
- Pump sets, pipework, ductwork and containment at basement level.
- Redundant temporary electrical supplies.
- Transformers, switchboards and meters.
- 2 no. lifts within 1999 glass extension building.

There is only 1 no. (expired in 2019) EPC for parts of 1 Alfred Place (levels 3 & 4), and this EPC suggests electric heating systems at the time of the last EPC, supporting the observations on-site of the use of condensers. The EPC states that ventilation was mixed-mode with some use of natural ventilation from the openable windows. There is no other detail on the existing MEPH systems within the EPC. Some images have been included below to support the narrative above.

Figure 4.1.1: AHUs at roof level (via project team site visit).

Figure 4.1.2: existing natural gas boilers at basement (via project team site visit).

Figure 4.1.3: typical images of age, state and condition of existing electrical equipment including switchgear and transformers (via project team site visit).

Figure 4.1.4: image showing condensers at roof level (via project team site visit).

Figure 4.1.5: images demonstrating typical extents of services on floorplates i.e. minimal remaining services and systems on-floor (via project team site visit).

4.2 Remaining Lifespan of Plant

Given the age and condition of much of the equipment in the building, it has not been possible to be particularly specific with the remaining service lives of the rooftop and basement plant that remains within the building. However, remaining service life can be inferred in some cases by existing information and evidence to hand.

The EPC for 1 Alfred Place (ref: 0240-5084-0331-0741-7044) was issued on 30th April 2009, and includes allowance for the electric heating systems, most likely in reference to the VRF condenser units that can be observed in Section 4.1. This suggests that they were installed prior to this EPC being issued, which means that the systems are at least 15 years old. Site review would also suggest that the AHUs are roughly the same age. As both of these systems typically have a service life of 15 years, these systems are deemed to be at the end of their service life and would require replacement.

Some of the basement systems, particularly the electrical systems such as the transformer and the switchgear, appear considerably older than this, with some of the equipment typical of kit installed in the 1970s and 1980s. The condition of these systems is poor, and they are deemed unlikely to meet more recent stringent regulations and testing requirements by the MEP consultant.

Pipework and ductwork throughout the building rangers from observationally adequate condition to being in a state of disrepair and is likely to need significant overhaul ahead of any intervention into the existing building.

All on-floor equipment has been stripped our prior to the Applicant gaining ownership of the building, so there is nothing to review or assess on the majority of floorplates.

The observations and surveys suggest strongly that a comprehensive overhaul of mechanical, electrical and public health system is required for the existing building to bring it up to modern low-energy and sustainability standards. Some of the equipment may even be many decades old and thus also present health and safety risks.

A more through review of the potential for future reuse of MEP systems and equipment should occur prior to any final strip out of the building to test the above and review whether there is potential for onwards reuse in the case of any intervention, refurbishment or redevelopment of the site.

Technical

5.1 Upgrades (Legislation)

There are a number of considerations around legislation and building regulations to be considered as part of the existing building, which include energy/EPC ratings, fire, accessibility and other key factors. These items are considered in this section.

The most recent EPC (expired in 2019 and not resubmitted) suggests that the building was an EPC C, but only covers c.1/4 of the existing area and only on L03 & 04 of 1 Alfred Place. It is likely that this EPC rating was reliant on the use of natural ventilation, given the poor performance in almost all other areas (MEP and building fabric) as identified within this report. It should be strongly noted that an EPC rating is not a good reflection of actual energy performance of a building and should not be taken as such (refer to industry review of this from sources such as the Better Buildings Partnership).

The building will need to be upgraded to meet the building regulation requirements for fire safety, accessibility and toilet provision. To meet London plan and Camden plan, the building has to follow their regulations of bike and bin storage provision. None of these items are currently met by the existing arrangements and provisions within the building, suggesting that more significant interventions may be required to achieve these policy and regulatory requirements.

5.2 Material Inventory

A pre-demolition & materials audit has been conducted by structural engineer Elliott Wood. Given the extent of strip out that has already occurred prior to Applicant ownership, this survey mainly focused on structural and fabric materials.

The survey identified 4,476 tonnes of material within structure and fabric, split between key material groups as outlined in Table 5.2.1 below.

Table 5.2.1: key breakdown of existing materials (by group) present on site.

Material	Quantity (tonnes)
Bricks	2,047
Concrete	2,003
Timber	104
Steel	222
Glass	24
Stone	41

A more detailed breakdown of the different types of waste that fit into these categories has been provided within the pre-demolition audit, which will be included in the Appendices of the Energy & Sustainability Statement if/when a refurbishment or redevelopment of this site is submitted for planning approval.

5.3 Dimensional & Structural

The structure of the existing buildings on site can be described as follows, split into the relevant locations/buildings within the site.

220-226 Tottenham Court Road

- Comprised of a basement level and ground plus four floors.
- Constructed with load bearing masonry walls and timber floors, the ground floor unit is framed, with load bearing walls having been transferred out at first floor.
- Between first and third floors the internal load bearing walls have large openings which are assumed to have been completed during the refurbishment works. The openings open up the floor plate, allowing horizontal circulation across the building.
- The ceiling is poorly installed often with inadequate details and may require augmentation to allow it to be retained.
- **South block:** Constructed alongside the building described above, but likely to have been a multistorey retail/restaurant unit. The building has a hybrid of load bearing masonry walls and steel/iron framing with timber floors.
- **South block:** The steel grillage and ceiling installed during the refurbishment works has a number of unorthodox details and will require further investigation if it is to be salvaged, it has been recommended by EWP structures that this is to be replaced to allow it to continue to support the roof, plant deck, and/or be adapted to become a terrace.

Figure 5.3.1: opening & load-bearing walls in 220-226 Tottenham Court Road.

Figure 5.3.2: Unorthodox steel detailing in steel grillage in 220-226 Tottenham Court Road. Key issues include lack of appropriate stiffeners and end plates to beams & top plate to columns.

3-5 Alfred Place

- Likely to have originally been an industrial use (possibly linked to the timber yard shown on archive drawings), 3-5 Alfred Place is constructed with steel/iron framing and concrete filler joist floors.
- Column centres are approximately 4.5m x 5.5m, the building floor heights are very compressed above first floor ranging from 3m – 3.2m floor to floor.
- There are signs of surface corrosion throughout, though it Is likely this can be cleaned relatively easily, and there is some cracking of the soffit of the filler joist floors.
- At ground floor there is access into a loading bay within the adjoining 7 Alfred Place.

22 Store Street

- Constructed with timber floors, and a hybrid of load bearing external walls with steel frame internally (2 central columns). At ground floor level the retail unit has been extended to the north and it is assumed a transfer frame exists to re-support the remaining facade over.
- On the north wall of the building are steelwork penetrations from the construction of the infill block. It is assumed this has been done to facilitate installation of the beams that frame the 1999 glass infill block.

Figure 5.3.3: penetration through external wall of 22 Store Street.

Courtyard Link Infill Building & Link Block

- Infill to the courtyard linking 220-226 Tottenham Court Road and 3-5 Alfred Place. It is constructed as a steel grillage with metal deck floors supported off existing walls to the other buildings.
- The party wall with 7 Alfred Place appears to have been an infill in blockwork with metal deck floors on steel beams. The floors have been built into the adjoining properties in each location, this is assumed to be a result of partially infilling the original courtyards in each property.
- The office entrance structure to link these buildings above ground floor is via a series of stair bridge links. The structure is steel and metal deck with glass facades.
- A number of the support details of the link are poorly executed and will need to be adapted or strengthened as part of the works.

Figure 5.3.4: Steel structure of the link building (first image) and internal image of steel and metal deck system (second image).

Surveys from structural engineer Elliott Wood suggests that the structural loading capacity of the frame is believed to be generally sufficient to support 1 no. additional floor but due to condition and variation of the existing structural typologies strengthening works will be required to various areas of the structure.

However, as described above there are a number of sensitive and poorly executed structural elements of the existing building that would require intervention and management if the existing building is to be retained and rescued, in whole or in part. This is particularly related to the 1999 infill building, which does not resolve level issues, and includes some poorly executed detailing. Structure is also found inboard of existing façade systems and brickwork in a number of locations, which also requires careful consideration and investigation when considering any upgrades to the building fabric that might occur as part of an enhancement strategy,

An independent structural survey from RSK noted the following:

- Unorthodox & questionable bearing details
- Many beams and columns have undergone crude interventions and present safety concerns without modification.
- 15-20 locations where significant strengthening required.
- Evidence of corroded beams and water ingress
- Limited & patchy fire protection

While there are a number of areas that require attention as defined above, there is no evidence that some form of reuse of the existing structure cannot be achieved. Therefore, any proposal to refurbish or redevelop the existing buildings should demonstrate how structural reuse and retention has been considered thoroughly for the site.

In terms of existing structural dimensions, a set of sectional elevation drawings by Digital Inc has been included in Appendix A for review and understanding of the existing floor to ceiling heights and internal constraints.

The internal slab to slab heights within the existing buildings varies considerably between the different buildings described and therefore it is hard to be specific here of provide a 'typical' internal slab to slab height across the buildings.

Some examples provided below:

- **Ground floor entrances:** 3.00m
- **Basement:** 2.43m
- **L01 220-226 TCR:** 2.79-3.92m
- **L04 Alfred Place:** 2.79m
- **Infill building:** 3.36m

Although the majority of these measures are taken without raised floors are suspended ceilings/service zones that would be typical of a modern commercial office fit-out (facilitated by the fact that the majority of the floorplates are stripped out with exposed structure), from the majority of measures taken it is still reasonable to assume that when these systems are added in in any fit out floor to ceiling heights would typically remain within BCO guidelines for refurbishment. It is important to remember however that there are many different conditions within the existing buildings and therefore this is not a 'one size fits all' approach here.

5.4 Fabric Performance

Ascertaining the existing performance of the building fabric will be critical to understanding whether intervention is required to improve operational energy performance over the longer term. The facades at The Courtyard Building are particularly sensitive as they include a number of key features thought to be from the original 1908 construction, and thus hold heritage value within the Bloomsbury Conservation Area. The existing buildings are considered to be 'positive contributors' to the conservation area. Any upgrade or variation to these systems would need to be sensitively considered in the context of retaining heritage value and balancing this with improvements to operational energy performance.

When considering interventions into existing facades and fabric, Chapter 8 of Camden's Energy Efficiency & Adaptability CPG states that:

- The Council expects proportionate measures to be taken to improve the energy performance and sustainability of existing buildings.
- All buildings being refurbished are expected to reduce their carbon emissions by making improvements to the existing buildings, including work involving an extension.
- When dealing with historic buildings, a sensitive approach needs to be taken.
- Making sensitive changes should also help preserve historic character where applicable.
- The council will aim to balance the conservation of fuel and power against the need to conserve the fabric of the building.

A site visit inspection was carried out by façade engineer FMDC on 12th July 2024, to try to understand the various condition and performance characteristics of the existing facades. The following observations were made by the façade engineer during their visit:

- The windows to Tottenham Court Road and Store Street are double glazed and potentially need replacing (See further comments/clarifications below). However, the windows to the Alfred Place are single glazed (Timber framed sash windows.

Figure 5.4.1: DGU glazing to Tottenham Court Road and Store Street elevations.

- There were several locations where interstitial condensation was evident in the existing DGUs.

- Typically, steel framed windows to Tottenham Court Road and Store Street.

Figure 5.4.2: steel frame windows to Tottenham Court Road and Store Street.

- Most of the windows have openable elements, however, note [anecdotally] due to windows sporadically opening due to high winds/internal pressures a number of the frames opening hardware had been bent/manipulated to prevent this occurring.

- Solid stone elements form the sill at the base of the glazing, clad externally with lead flashing. The stone sill will cause a thermal bridge and potential condensation risk that should be further assessed, and it was noted that the deep sills have minimal falls, to shed water to the exterior. Note: Consideration to be given to the long term access and maintenance of the windowsills, as it was noted in several location that bird mitigation measures had failed.

- The DGU panes are tempered and were provided by DarbyTuf.

- The Building is steel-framed construction, with infill brickwork/masonry. Steel framing (Columns) embedded in brickwork piers, with steel header beam supporting masonry above glazing. Further assessment of the thermal performance should be carried out to determine the potential impact of internally insulating the facade, and the potential risk of interstitial condensation/moisture in the wall build-up.

- The primary Tottenham Court Road and Store Street elevations are characterised at first floor level by large, South and West facing windows.

Figure 5.4.3: large south and west-facing windows on Tottenham Court Road and Store Street elevations.

- The windows to Tottenham Court Road and Store Street are double glazed, non-thermally broken, steel-framed windows and there were several locations where interstitial condensation was evident in the existing DGUs (see Figure 5.4.4), that need replacing. However, the windows to the Alfred Place are single glazed (Timber framed sash windows).

- Although the windows are double-glazed, the window setting out is decorative and there are a high number of very slim, and/or small glazing units which when considered in relation to the non-thermally broken steel framing will be relatively poorly performing. A detailed u-value assessment should be carried out to determine the anticipated performance.

A number of the double-glazed units (DGU) have failed, whereby the edge seal no longer provides a fully sealed unit and interstitial condensation is evident within the cavity. These units will need to be replaced to meet the required u-value/thermal performance.

This is likely to be a result of the age of the unit and/or the condition of the window frame, or a problem with the manufacture of the unit. It could also be due to how the window was originally installed or a chemical cleaning material used on the window that over time has damaged the seal.

Figure 5.4.4: evidence of failure of DGUs.

Given the units were produced by Darbytuf, who ceased trading in approximately 2009, it is anticipated that the glazing units are circa 15-25 years old (a DGU would typically have a service life of 25-30-years).

As previously noted, window hardware has been manipulated in multiple locations to prevent the windows opening due to higher winds and/or internal pressures. If the existing glazing system is to be retained, window opening, and operation should be reviewed to ensure correct operation and to avoid water ingress and air infiltration. Existing window hardware may need to be replaced in multiple locations.

The quality of the masonry brick piers and walls is poor and in some locations sections of brickwork are missing, have been chased out or are loose and can be removed by hand. Further assessment of the brick piers may be required depending on the approach taken to the repair and thermal performance strategy for the refurbished building. If the approach is to insulate internally, further analysis of the wall construction will be required to determine the moisture content of the wall, to carry out thermal and condensation risk analysis.

As illustrated below, the quality of the interface between the glazing and the structural opening is very inconsistent and is likely a source of air infiltration/exfiltration through the facade. Any repairs/making-good should review the perimeter seals to the masonry piers. Ad hoc sealant work has been carried out in some locations, presumably to address water ingress issues.

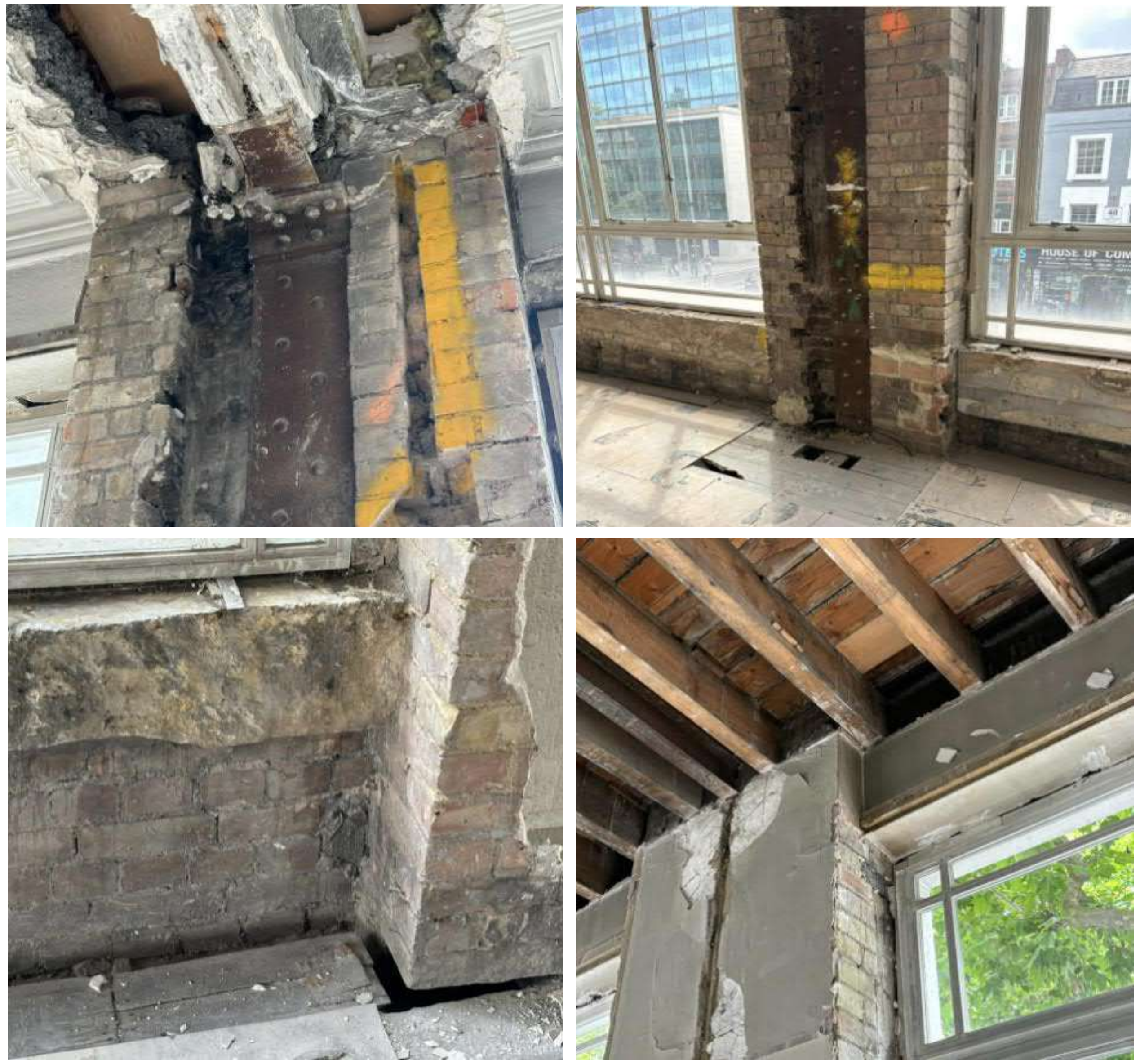
Figure 5.4.5: condition of brick piers and façade/glazing interfaces.

Careful consideration of the external wall build-up is required to ensure the long term durability of the existing building fabric.

Given the condition of the external wall, missing/chased brickwork and pointing, and the primary frame steelwork being embedded in the masonry wall, there is the potential risk that adding insulation in-board of the external wall may alter the dew-point location which would potentially increase the moisture content of the existing wall construction and could lead to potential corrosion of the existing steelwork embedded in the masonry.

Additionally, further assessment of the steel header beam and the floor beams/joists on the thermal performance will be required, given the potential thermal bridging impact where these penetrate through the proposed thermal line.

Figure 5.4.6: interfaces of facades and structures generating condensation risk if/where walls are insulated internally in any future upgrade of building fabric.



Based on the evidence shown in Figures 5.4.5 and 5.4.6, it is also likely that thermal bridging is extensive across the existing facades and this is contributing to poor performance.

Due to this arrangement, and the need to potentially move internal wall thermal performance towards the U-values specified in Building Regulations Part L as a result of any refurbishment through internally insulating, a condensation risk analysis was carried out by FMDC.

FMDC found that adding interior insulation will likely increase the average moisture content of the wall, as well as decreasing its average temperature. The building will no longer be able to dry out ('breathe') from both sides and the interior interfaces like floors / ceilings, windows and party walls will also require insulating in order to mitigate the risk of further issues/problems due to thermal bridging.

The most significant risk is creating condensation which can be on the surface of a building component or between layers of the building fabric, otherwise known as 'interstitial condensation'. Intrusive surveys and analyses are required to accurately assess the risk of long-term problems being introduced through retrofitting interior insulation.

In an embedded steel frame structure, such as TCB, the prospect of condensation forming on the steel elements and accelerating corrosion is one to be avoided. As a result, it is recommended that retained facades with embedded steelwork within the facade are not internally insulated. The embedded steelwork needs to remain warm to avoid moisture forming on its surface, which could accelerate its corrosion rate. In accordance with BS EN ISO 13788, monthly mean relative humidity on the surface of steelwork should remain below 60% to avoid corrosion. Internal insulation of any type will leave the embedded steelwork cold and move the dew point internally towards the insulation zone (see Appendix B), increasing the risk of moisture forming on the embedded steelwork, accelerating its corrosion rate. Other options, such as insulating with capillary active and vapour permeable insulation, may be alternative solutions that avoid this issue and move the solid wall elements towards a more reasonable U-value, but are still unlikely to achieve the thermal performance close to new Part L requirements. The analysis was carried out with boundary conditions of -5⁰C/+20⁰C and 40% RH.

Thermal analysis conducted by FMDC of the existing glazing is included in Appendix X of this report. An informed estimation of the U-values for the solid masonry elements was also provided by FMDC. These are summarised in Table 5.4.1 below.

Table 5.4.1: Summary of thermal performance of the existing façade system.

Element	Existing Performance
U-value – Solid/Opaque W/m^2.K	1.0-1.5
U-value – glazing (typical) W/m^2.K	4.6
G-values	0.8
Air Permeability m^3/h/m^2 @ 50 Pa	Unknown (assumed 25-50)

The values stated above demonstrate the poor thermal performance of the existing facades. While some windows may perform slightly better (i.e. those within the glass box 1999 extension), overall the solid and opaque elements are of poor performance. The set nature of the existing glazing arrangement also provides limited ability to manage and mitigate overheating risk. This all needs to be considered against the need to retain the existing façades as part of the heritage piece and the management of buildings of merit within the Bloomsbury Conservation Area.

The roof systems are also deemed to be of a very poor quality, as identified within the RSK survey information. The performance of the roof systems is well below and current regulatory requirements, and the spatial constraints and current arrangement of plant allows no room for useful allocation of building benefits at roof level, such as accessible terraces, urban greening, surface water management (such as blue roof systems) or the implementation of photovoltaic systems, all of which would be expected under current environmental and planning policies. In the case of any intervention or refurbishment, it is evident that significant intervention and/or replacement of the roof systems will be required at this time. This may facilitate the ability to unlock a number of additional holistic sustainability features.

5.5 Energy Modelling

No energy modelling has been conducted for the existing building, as this is compounded by the fact that there is no insitu MEP equipment and limited detail on the performance of this kit. The preceding sections suggest that the energy performance of the existing building is very poor (EPC aside, which as noted previously does not give a good understanding of actual energy performance.

In conjunction with the above, no meter readings from any period have been provided from the existing building; ownership of the building by the Applicant is recent, after the majority of the building had been stripped out, and no history readings could be provided. No tests with assumed occupancy could be made on this basis, and this leaves limited ability to gather information on what the energy performance might have been when the building was operational.

The EPC also provides no details on energy performance. As the existing EPC for 1 Alfred Place was conducted in 2009, no primary energy calculation was undertaken or provided as part of the certification process. In any case, the EPC only covers a small part of the existing site and its use would have been problematic to define any sort of reasonable calculation of energy performance.

Based on the findings of this report, it is reasonable to assume that the energy performance of the existing buildings is very poor, and some significant interventions would likely be required in order to bring it back towards modern standards of energy efficiency. However, as noted in Section 5.4, this needs to be balanced against retaining local heritage value within the Bloomsbury Conservation Area.

5.6 Site Capacity

The site holds excellent opportunities for future increase in capacity. The Site location achieves a PTAL rating of 6b from Transport for London's WebCAT tool, the highest possible rating for an urban location, demonstrating its outstanding accessibility from public transport. Situated in a highly accessible Central London location near various rail, underground, and bus services, with improvements to cycle storage and facilities within the building the site presents a good opportunity for increasing capacity. The achievement of this would require intervention to meet current guidelines however, and this is important to consider.

Conclusions

6

6.1 Conclusions & Summary

This report has set out the findings of the Condition & Feasibility Study conducted by Sweco UK for The Courtyard Building, focusing on the operation, materiality and performance of the existing building. The content of this report has been set out to align with the requirement of London Borough of Camden's Energy Efficiency & Adaptability (EEA) CPG Chapter 9. The report has been informed by survey data, observations from the Applicant's professional team and existing building information that has been gathered and reviewed as part of this study to provide as in-depth a review of the insitu building as possible at this time.

The key findings of this report can be summarised as follows:

- **Functional operation:** significantly different floor levels in a number of locations, mixed structural systems with a number of issues, underwhelming entrance spaces and dated appearance. The building has been vacant for a number of years and a large extent of the floorplates have been stripped out under previous ownership.

- **Legislation:** the current EPC has expired in 2019. The existing building requires fairly significant interventions to comply with current regulations and regional policies including fire, access and transport facilities (i.e. cycle storage and associated facilities).

- **Servicing**: most of the on-floor services have been stripped out, and very little on-floor equipment remains. Some plant evident at roof level (AHUs, condenser units etc.) reflective of an electric heating and cooling system when the buildings were functionally operational. Some equipment at basement, mostly electrical equipment. Equipment deemed to be at the end of its service life, with some of the basement electrical equipment assumed to be many decades old based on visual inspections.

- **Structure:** mixed structure across the site and the existing buildings, with a range of load-bearing masonry, steel frames, timber floors, concrete infills and metal deck systems. Independent surveys raised a number of issues with interfaces and current condition, but in general the structure is not condemned and potential for reuse and refurbishment is evident in a number of locations. The extent of strip has facilitated a more detailed interrogation of existing structures at an early stage.

- **Facades & Fabric:** Fabric performance is poor, and a number of key issues have been raised due to interface between structure and facades, window condition/performance and risks such as condensation if walls were to be upgraded thermally. However, this need to be carefully balanced against the heritage value of the original façade design and systems as a 'positive contributor' within the Bloomsbury Conservation Area, and sensitive and informed upgrades will need to be made as a result. The roof is in very poor condition and requires replacement.

- **Energy:** energy performance is expected to be poor given the information found within this report and the current understanding of the importance of building fabric in determining low-energy performance. Interventions are required to improve this. Given the lack of existing occupiers for many years no meter readings from an operational year could be found. The EPC, expired in 2019, does not provide any detail such as primary energy on which to base an assumption, and only covers a small area of the existing buildings.

- **Site capacity:** the site offers excellent opportunities to increase capacity, with a PTAL rating of 6B indicating excellent public transport links and opportunities for sustainable transport, particularly due to the proximity to the Tottenham Court Road station with its recent addition of Crossrail.

The site therefore offers opportunity for reuse and refurbishment of the existing structure, subject to the interventions required to facilitate compliance with regulatory and regional/local policy requirements and management of the issues raised within the professional and independent surveys. This should be explored in any proposed intervention to the site. Management of the facades is more problematic; while the current performance arguably requires fairly significant interventions to move towards modern fabric performance requirements, the heritage value of the existing systems within the Conservation Area should also be maintained as far as possible. Therefore, interventions to facades should be sensitive and decisions made within the context of these wider considerations.

Replacement of the poor-performance roof presents opportunities to enhance other sustainability attributes of any refurbishment or redevelopment, including allowing for accessible terrace space for occupant health and wellbeing, deployment of surface water management strategies such as blue roofs, enhancing urban greening and biodiversity of the site and the potential for renewable energy systems such as PV panels.

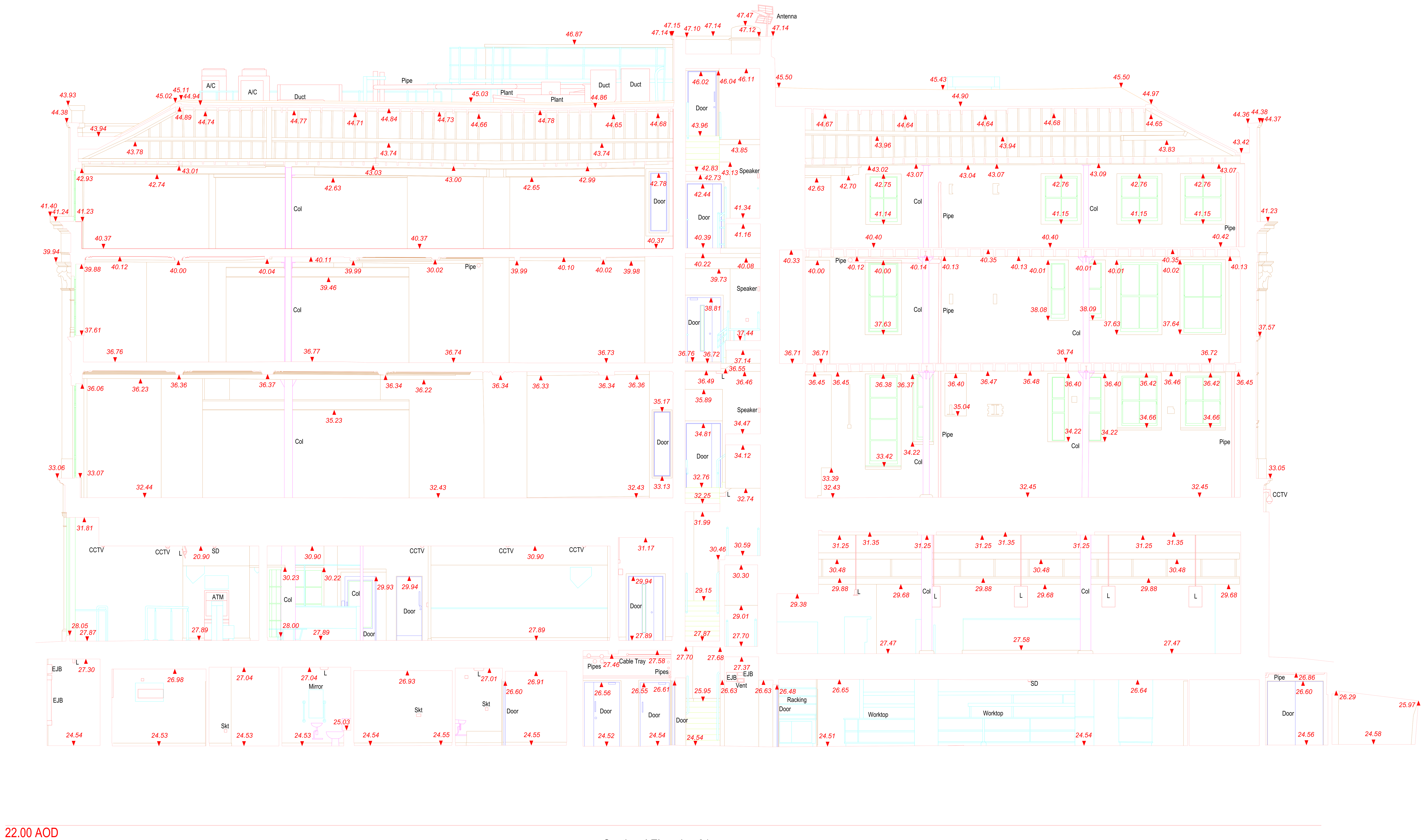
Building services systems are at the end of their service life and a comprehensive overhaul should be considered. Systems should be deployed that meet the current best-practice standards of performance against regulatory and industry guidance, and this should be balanced against any decision to intervene in the existing facades.

While it is recognised that the building is already stripped out to a considerable degree, any intervention is likely to result in removal of products and materials from the existing building. Audits of these materials leaving the site should be undertaken, to ensure that their end of life treatment is undertaken in the most sustainable way, with alternative opportunities for reuse also explored where possible.

Overall, the existing buildings present viable opportunities for insitu reuse of structure and facades, subject to the management and mitigation of the risks that have been set out within this report. Sensitive remodelling and refurbishment of the existing building to achieve a good level of long-term sustainable performance is deemed possible without having to resort to full demolition of the existing building.

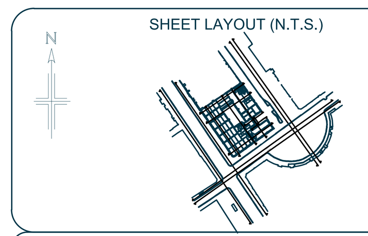
Appendix A

Existing Buildings Sectional Survey Information



Sectional Elevation 01

SHEET LAYOUT (N.T.S.)



STANDARD ABBREVIATIONS

A/C	Air Conditioner	LB	Litter Bin
ATM	Automated Telling Machine	LP	Lamp Post
B	Bollard	Max	Maximum
BB	Belisha Beacon	Mb	Multibole
Bh	Borehole	MH	Manhole
Br	Brick	Min	Minimum
BrS	Brick Setts	Mkr	Marker
BRW	Brick Retaining Wall	NB	Notice Board
BS	Bus Stop	NP	Name Plate
BSL	Beam Soffit Level	OBF	Open Boarded Fence
BT	British Telecom	O/H	Overhead
BW	Brick Wall	OSBM	Ordnance Survey Bench Mark
BWF	Barbed Wire Fence	P	Post
CBF	Close Boarded Fence	PB	Pillar Box
CCTV	Closed Circuit Television	PGM	Permanent Ground Marker
CIF	Corrugated Iron Fence	PLt	Pavement Light
CL	Cover Level	PM	Parking Meter
CLF	Chain Link Fence	PRF	Post and Rail Fence
Col	Column	PS	Paving Stones
Conc	Concrete	PWF	Post and Wire Fence
CoW	Cable on Wall	RE	Rodding Eye
CPS	Concrete Paving Slabs	RG	Road Gully
CTV	Cable Television IC	RS	Road Sign
d	depth	RSJ	Rolled Steel Joist
DC	Duct Cover	RWP	Rain Water Pipe
DH	Duct Height	s	spread
DP	Down Pipe	SB	Sign Board
DrC	Drainage Channel	SBM	Site Bench Mark
EIC	Electrical Inspection Cover	SC	Stop Cock
EJB	Electrical Junction Box	SF	Security Fence
EP	Electricity Pole	ShB	Shrub Bed
ER	Earthing Rod	SL	Sump Level
ESG	Electrical Switchgear	SO	Smoke Outlet
FB	Flower Bed	SP	Sign Post
FH	Fire Hydrant	SV	Stop Valve
FL	Floor Level	T	Telephone
Flt	Floodlight	Tac	Tactile Paving
g	girth	TBM	Temporary Bench Mark
G	Gully	TCB	Telephone Call Box
GC	Gas Cock	TCP	Traffic Control Post
GM	Gas Meter	TIC	Telephone Inspection Cover
GP	Gate Post	TJB	Telephone Junction Box
GV	Gas Valve	TL	Traffic Light
h	height	TLCB	Traffic Light Control Box
HR	Handrail	TLIC	Traffic Light Inspection Cover
IB	Illuminated Bollard	TP	Telephone Pole
IC	Inspection Cover	Typ	Typical
IL	Invert Level	V	Vent
IRF	Iron Railing Fence	VP	Vent Pipe
IRS	Illuminated Road Sign	W	Window
JB	Junction Box	WM	Water Meter
KO	Kerb Outlet	WV	Water Valve
L	Light		

OTHER ABBREVIATIONS

BP	Boundary Post	Pl	Plaster
BSh	Bus Shelter	RSS	Rubberised Safety Surface
Ce	Ceiling	SRW	Stone Retaining Wall
CPF	Chestnut Paling Fence	SS	Security Sensor
FP	Flagpole		

LEGEND

F0.00	FALSE CEILING HEIGHT	PH 0.00	PLINTH HEIGHT
0.00	CEILING/SOFFIT HEIGHT	DH 0.00	DOOR HEIGHT
BH 0.00	BEAM SOFFIT LEVEL	FFL XXX.XX	FLOOR LEVEL
Up	STAIR/RAMP ARROW - UP	SSL XXX.XX	STRUCTURAL SLAB LEVEL
Up	O/HEAD SLOPE ARROW - UP		ASSUMED DETAIL
Down	ROOF SLOPE ARROW - DOWN	XX.XX	HEIGHT/LEVEL (ELEVATIONS)
	STRUCTURAL CEILING ARCHED		

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.

THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc
EXPERTS ON DEMAND

CLIENT

OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE

The Courtyard Building
1 Alfred Place
London

Sectional Elevation 01

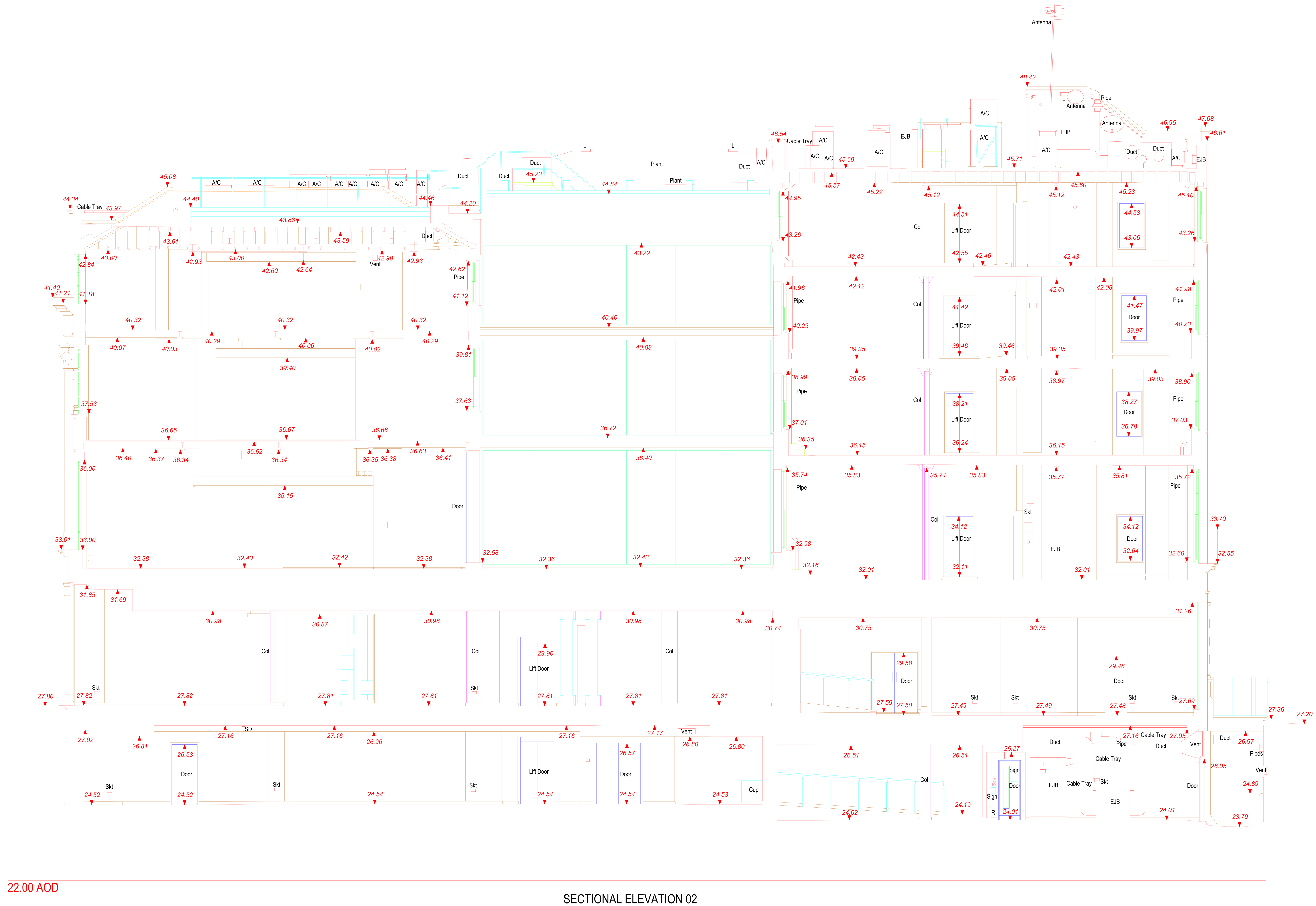
PRESENTATION SCALE 1:50 @ A0

DATE OF ORIGINAL SURVEY April 2024

PROJECT No. 1071 | CHECKED RH

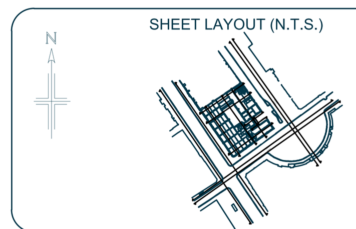
DRAWING No. 1071-DIG-SE-01

REVISION P01



SECTIONAL ELEVATION 02

SHEET LAYOUT (N.T.S.)



STANDARD ABBREVIATIONS

OTHER ABBREVIATIONS

LEGEND

FALSE CEILING HEIGHT

CEILING/SOFFIT HEIGHT

BEAM SOFFIT LEVEL

STAIR/RAMP ARROW - UP

DIHEAD SLOPE ARROW - UP

ROOF SLOPE ARROW - DOWN

STRUCTURAL CEILING ARCHED

PLINTH HEIGHT

DOOR HEIGHT

FLOOR LEVEL

STRUCTURAL SLAB LEVEL

ASSUMED DETAIL

HEIGHT/LEVEL (ELEVATIONS)

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.

THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc
EXPERTS ON DEMAND

CLIENT

OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE

The Courtyard Building
1 Alfred Place
London

Sectional Elevation 02

PRESENTATION SCALE 1:50 @ A0

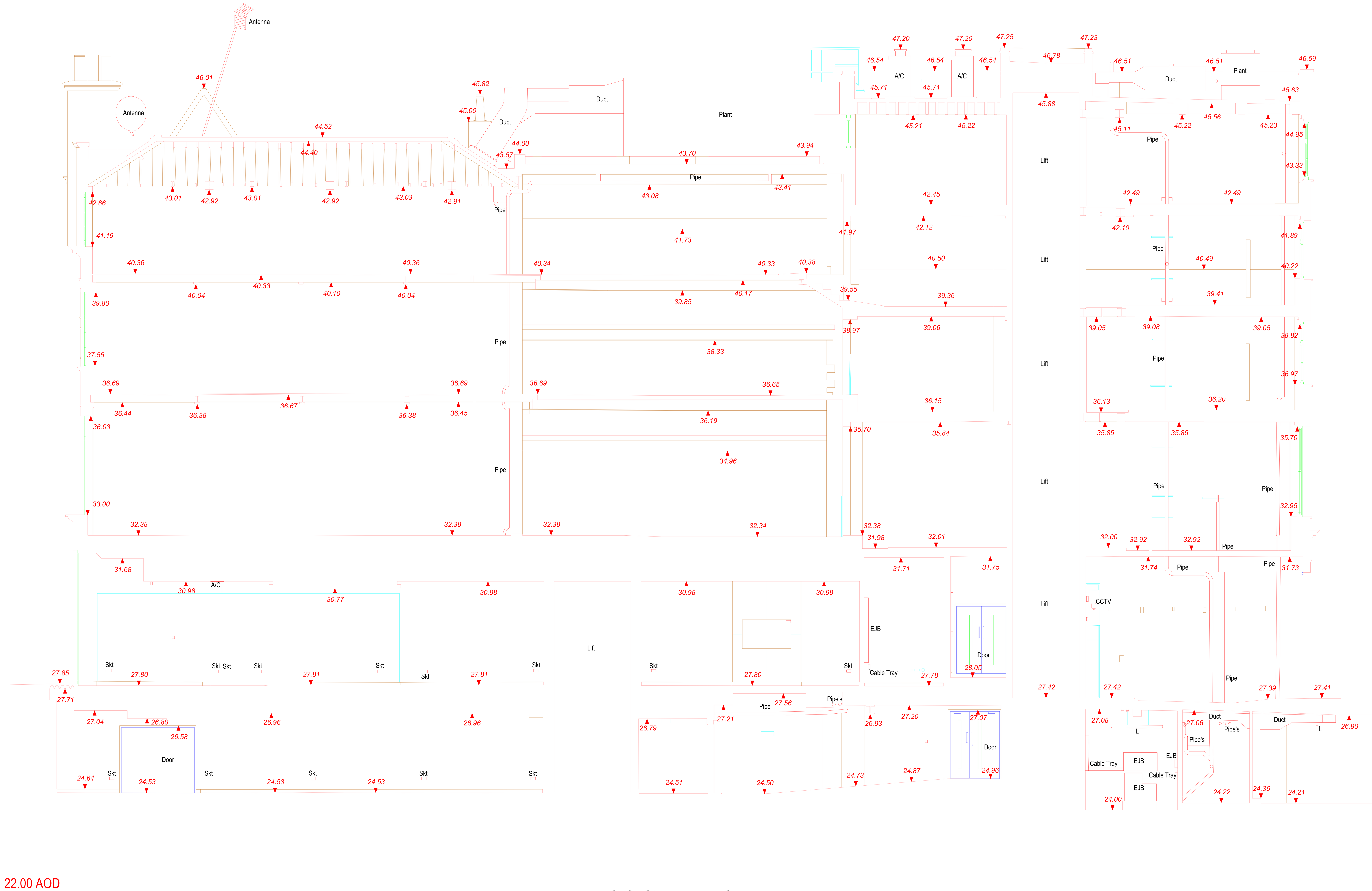
DATE OF ORIGINAL SURVEY April 2024

PROJECT No. 1071

CHECKED RH

DRAWING No. 1071-DIG-SE-02

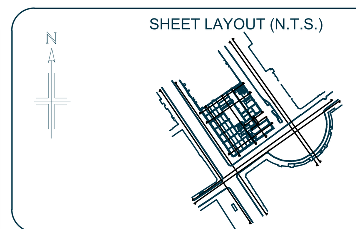
REVISION P01



SECTIONAL ELEVATION 03

0.5 0 1 2 5
metres

SHEET LAYOUT (N.T.S.)



STANDARD ABBREVIATIONS

OTHER ABBREVIATIONS

LEGEND

F0.00	FALSE CEILING HEIGHT	PH 0.00	PLINTH HEIGHT
0.00	CEILING/SOFFIT HEIGHT	DH 0.00	DOOR HEIGHT
BH 0.00	BEAM SOFFIT LEVEL	FFL XXX.XX	FLOOR LEVEL
Up	STAIR/RAMP ARROW - UP	SSL XXX.XX	STRUCTURAL SLAB LEVEL
Up	O/HEAD SLOPE ARROW - UP		ASSUMED DETAIL
Down	ROOF SLOPE ARROW - DOWN	XX.XX	HEIGHT/LEVEL (ELEVATIONS)
	STRUCTURAL CEILING ARCHED		

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.
THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc
EXPERTS ON DEMAND

CLIENT
OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE
The Courtyard Building
1 Alfred Place
London

Sectional Elevation 03

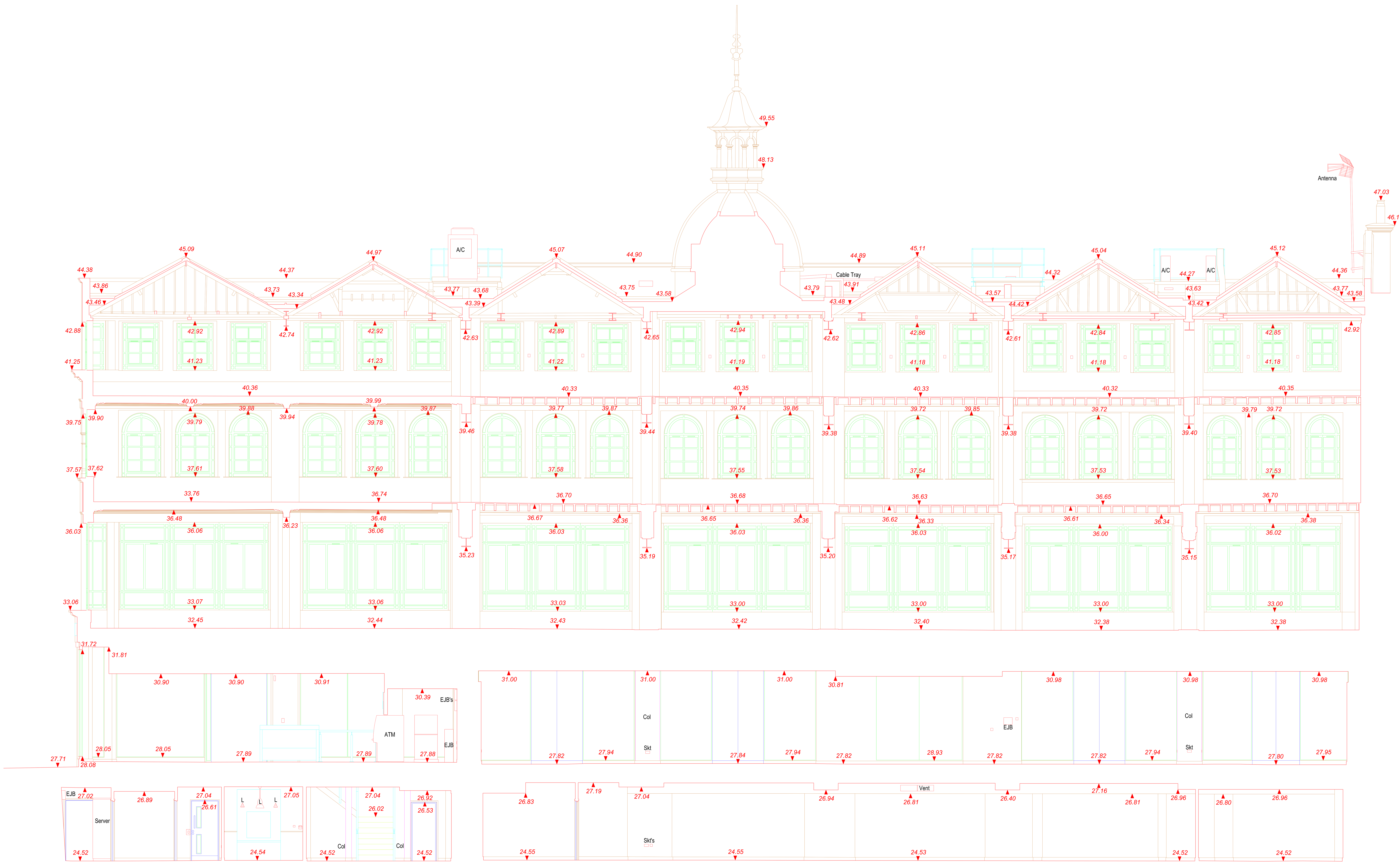
PRESENTATION SCALE 1:50 @ A0

DATE OF ORIGINAL SURVEY April 2024

PROJECT No. 1071 | CHECKED RH

DRAWING No. 1071-DIG-SE-03

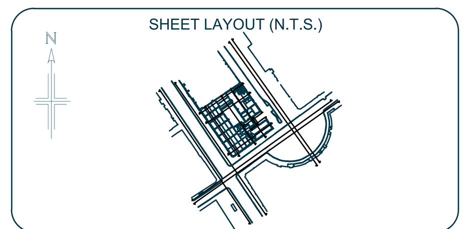
REVISION P01



22.00 AOD

SECTIONAL ELEVATION 04

SHEET LAYOUT (N.T.S.)



STANDARD ABBREVIATIONS

OTHER ABBREVIATIONS

LEGEND

FALSE CEILING HEIGHT
CEILING/SOFFIT HEIGHT
BEAM SOFFIT LEVEL
STAIR/RAMP ARROW - UP
ROOF SLOPE ARROW - DOWN
STRUCTURAL CEILING ARCHED
PLINTH HEIGHT
DOOR HEIGHT
FLOOR LEVEL
STRUCTURAL SLAB LEVEL
ASSUMED DETAIL
HEIGHT/LEVEL (ELEVATIONS)

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.
THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc
EXPERTS ON DEMAND

CLIENT

OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE

The Courtyard Building
1 Alfred Place
London

Sectional Elevation 04

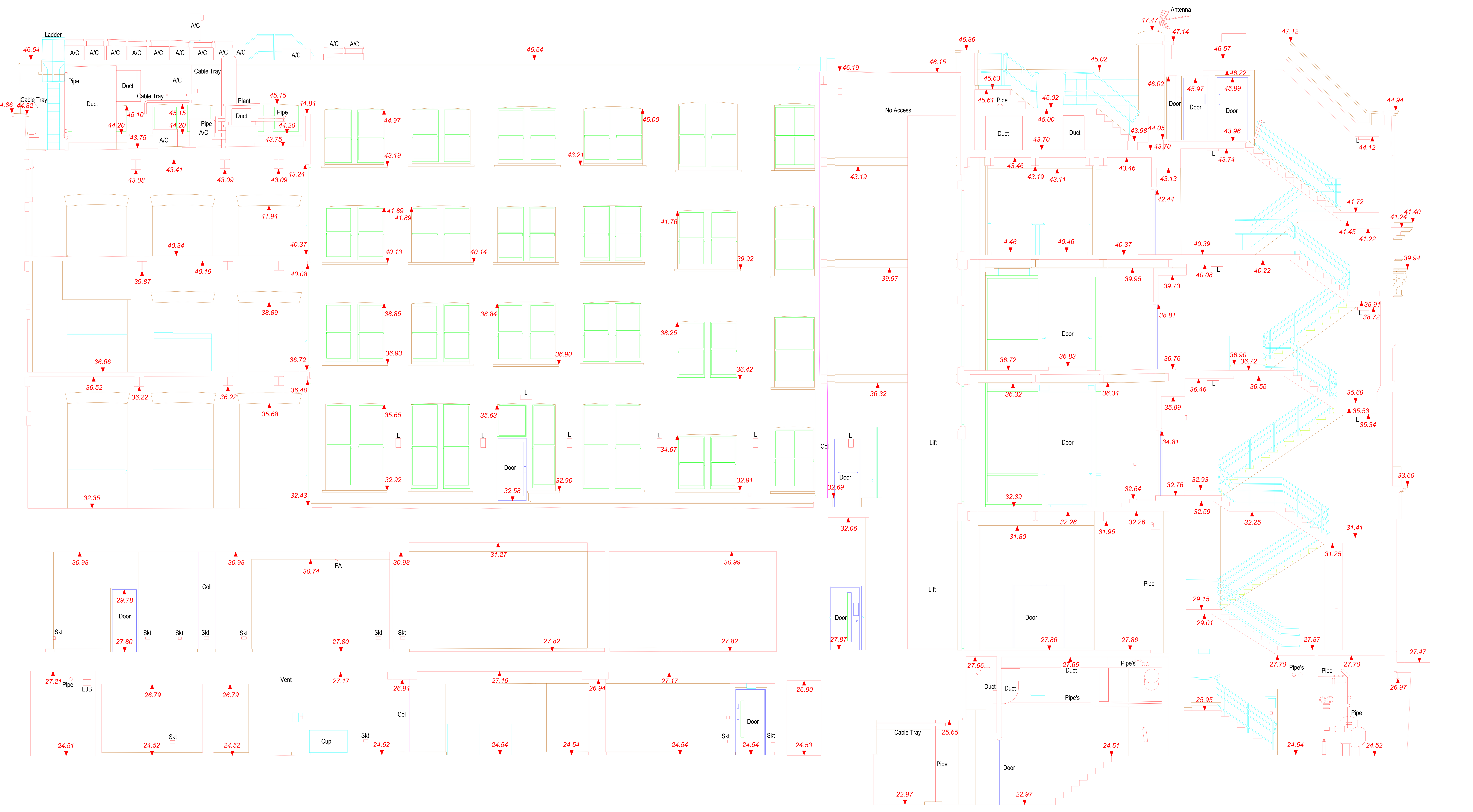
PRESENTATION SCALE: 1:50 @ A0

DATE OF ORIGINAL SURVEY: April 2024

PROJECT No. 1071 | CHECKED RH

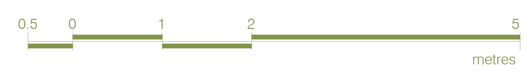
DRAWING No. 1071-DIG-SE-04

REVISION P01

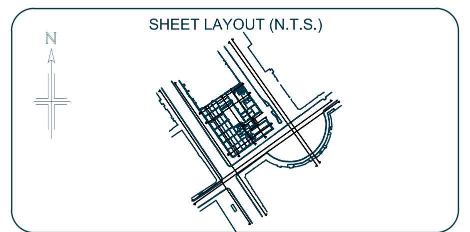


22.00 AOD

SECTIONAL ELEVATION 05



SHEET LAYOUT (N.T.S.)



STANDARD ABBREVIATIONS

OTHER ABBREVIATIONS

LEGEND

STRUCTURAL CEILING ARCHED

XX.XX HEIGHT/LEVEL (ELEVATIONS)

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.
THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc EXPERTS ON DEMAND

CLIENT

OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE

The Courtyard Building
1 Alfred Place
London

Sectional Elevation 05

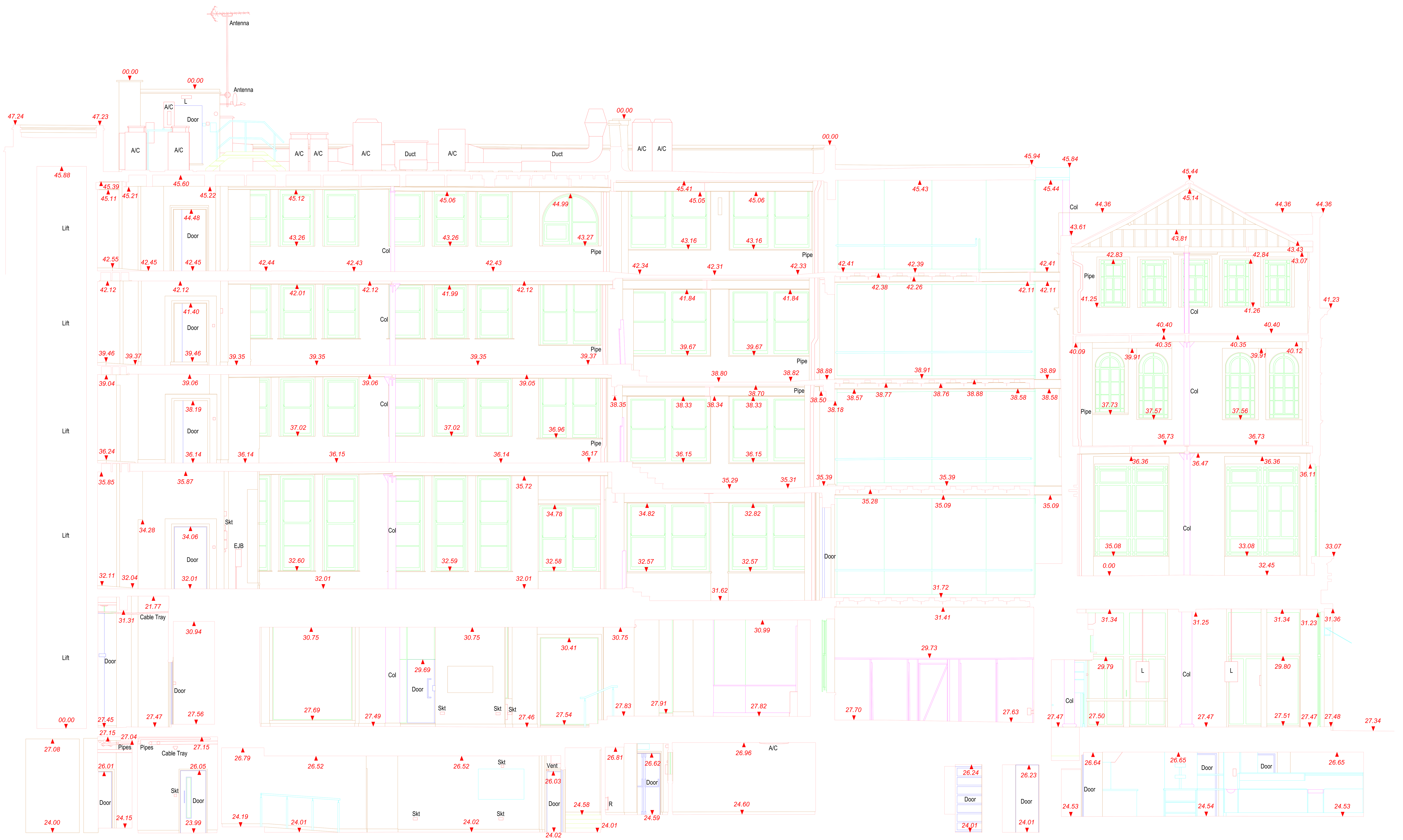
PRESENTATION SCALE 1:50 @ A0

DATE OF ORIGINAL SURVEY April 2024

PROJECT No. 1071 CHECKED RH

DRAWING No. 1071-DIG-SE-05

REVISION P01



22.00 AOD

SECTIONAL ELEVATION 06

0.5 0 1 2 5
metres

SHEET LAYOUT (N.T.S.)

N

STANDARD ABBREVIATIONS

A/C	Air Conditioner	LB	Litter Bin
ATM	Automated Telling Machine	LP	Lamp Post
B	Bollard	Max	Maximum
BB	Belisha Beacon	Mb	Multibole
Bh	Borehole	MH	Manhole
Br	Brick	Min	Minimum
BrS	Brick Setts	Mkr	Marker
BRW	Brick Retaining Wall	NB	Notice Board
BS	Bus Stop	NP	Name Plate
BSL	Beam Soffit Level	OBF	Open Boarded Fence
BT	British Telecom	O/H	Overhead
BW	Brick Wall	OSBM	Ordnance Survey Bench Mark
BWF	Barbed Wire Fence	P	Post
CBF	Close Boarded Fence	PB	Pillar Box
CCTV	Closed Circuit Television	PGM	Permanent Ground Marker
CIF	Corrugated Iron Fence	PLt	Pavement Light
CL	Cover Level	PM	Parking Meter
CLF	Chain Link Fence	PRF	Post and Rail Fence
Col	Column	PS	Paving Stones
Conc	Concrete	PWF	Post and Wire Fence
CoW	Cable on Wall	RE	Rodding Eye
CPS	Concrete Paving Slabs	RG	Road Gully
CTV	Cable Television IC	RS	Road Sign
d	depth	RSJ	Rolled Steel Joist
DC	Duct Cover	RWP	Rain Water Pipe
DH	Duct Height	s	spread
DP	Down Pipe	SB	Sign Board
DrC	Drainage Channel	SBM	Site Bench Mark
EIC	Electrical Inspection Cover	SC	Stop Cock
EJB	Electrical Junction Box	SF	Security Fence
EP	Electricity Pole	ShB	Shrub Bed
ER	Earthing Rod	SL	Sump Level
ESG	Electrical Switchgear	SO	Smoke Outlet
FB	Flower Bed	SP	Sign Post
FH	Fire Hydrant	SV	Stop Valve
FL	Floor Level	T	Telephone
Flt	Floodlight	Tac	Tactile Paving
g	girth	TBM	Temporary Bench Mark
G	Gully	TCB	Telephone Call Box
GC	Gas Cock	TCP	Traffic Control Post
GM	Gas Meter	TIC	Telephone Inspection Cover
GP	Gate Post	TJB	Telephone Junction Box
GV	Gas Valve	TL	Traffic Light
h	height	TLCB	Traffic Light Control Box
HR	Handrail	TLIC	Traffic Light Inspection Cover
IB	Illuminated Bollard	TP	Telephone Pole
IC	Inspection Cover	Typ	Typical
IL	Invert Level	V	Vent
IRF	Iron Railing Fence	VP	Vent Pipe
IRS	Illuminated Road Sign	W	Window
JB	Junction Box	WM	Water Meter
KO	Kerb Outlet	WV	Water Valve
L	Light		

OTHER ABBREVIATIONS

BP	Boundary Post	Pl	Planter
BSh	Bus Shelter	RSS	Rubberised Safety Surface
Clg	Ceiling	SRW	Stone Retaining Wall
CPF	Chestnut Paling Fence	SS	Security Sensor
FP	Flagpole		

LEGEND

FALSE CEILING HEIGHT
CEILING/SOFFIT HEIGHT
BEAM SOFFIT LEVEL
Up STAIR/RAMP ARROW - UP
Up DIHEAD SLOPE ARROW - UP
Down ROOF SLOPE ARROW - DOWN
STRUCTURAL CEILING ARCHED
PLINTH HEIGHT
DOOR HEIGHT
FLOOR LEVEL
STRUCTURAL SLAB LEVEL
ASSUMED DETAIL
HEIGHT/LEVEL (ELEVATIONS)

NOTES

DUE TO THE INHERENT INSTABILITY OF PAPER MATERIALS, DRAWINGS PLOTTED ON PAPER MAY BE STRETCHED AND DISTORTED. DIMENSIONS SCALED FROM PAPER PLOTS SHOULD THEREFORE BE TREATED WITH CAUTION.
THIS DRAWING HAS BEEN PRODUCED FOR THE PURPOSE OF THE ORIGINAL ORDER. DIGITAL INC WILL ACCEPT NO RESPONSIBILITY FOR DETAILS THAT ARE SUBSEQUENTLY FOUND TO BE THE CONSEQUENCE OF UNDISCLOSED FACTS OR THAT WERE OBSCURED FROM VIEW AT THE TIME OF SURVEY OR THAT HAVE BEEN ALTERED SINCE THE SURVEY.

THIS SURVEY HAS BEEN CARRIED OUT TO AN ACCURACY CONSISTENT WITH A SURVEY SCALE OF 1:50 AND PRESENTED TO A SCALE OF 1:100. INTERROGATED DIMENSIONS WILL BE WITHIN THE TOLERANCE ASSOCIATED WITH THIS AND SMALLER SCALES ONLY.

ALL LEVELS ARE IN METRES AND ARE ABOVE ORDNANCE SURVEY NEWLYN DATUM DERIVED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

THIS SURVEY IS POSITIONED ON ORDNANCE SURVEY (OS) NATIONAL GRID, OBTAINED BY MULTIPLE NETWORK RTK GPS OBSERVATIONS.

ALL QUOTED DIMENSIONS ARE IN METRES
DRAWING UNITS ARE METRES

REVISIONS

Revision	Details	By	Date
P01	First Issue	DI	20-05-2024

digitalinc
EXPERTS ON DEMAND

CLIENT

OPERA
24-25 The Shard
32 London Bridge Street
London SE1 9SG

PROJECT TITLE

The Courtyard Building
1 Alfred Place
London

Sectional Elevation 06

PRESENTATION SCALE	1:50 @ A0
DATE OF ORIGINAL SURVEY	April 2024
PROJECT No. 1071	CHECKED RH
DRAWING No.	1071-DIG-SE-06
REVISION	P01

Appendix B

Existing Facades – Thermal Analysis, Condensation Risk Analysis, Corrosion Risk & Vented Cavity Study