Manchester Royal Exchange

Rooms 41-51 M&E Refurbishment Feasibility Report

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1.0 Introduction

Crookes Walker Consulting Limited (CWC) was commissioned by King Sturge, on behalf of Prudential Property Investments, to undertake a feasibility study for the proposed refurbishment of offices 41 – 51.

The existing offices are sub-divided into a number of separate offices along the external glazed façade and internally.

1.1 Existing accommodation description

Rooms 41-51 are a suite of offices within the grade II listed Manchester Royal Exchange located on the Cross Street elevation at Exchange level. The suite was recently vacated by the previous tenant and is extensively divided into small office spaces off a main central corridor with a suspended ceiling throughout.

1.2 Existing building services

The suite is currently provided with the following M&E services:

- Heating is provided to the offices by single pipe loop with cast iron column radiators to the external Cross Street Elevation, internal corridor and offices. The radiators to the Cross Street elevation are enclosed within a timber enclosure with ventilation openings.

- Cold water supply is provided to the existing kitchen area and emanates from the water services in the kitchen and WC facility located on the Cross Street elevation, adjacent to staircase 2. domestic hot water is provided to the existing kitchen by a local electric point of use water heater.

- Above ground drainage is provided to the existing kitchen with a drainage lift pump which connects into the buildings above ground drainage installation within the adjacent WC.

- The internal office spaces are provided with ventilation via louvre openings at high level within the roof light upstands. These have been left open and provide uncontrolled ventilation to the internal office space with ceiling mounted grilles.

- An existing fire rated extract duct passes through the office space at high level (above Rooms 49 and 51). The ductwork appears to serve the adjacent shopping centre and appears to rise upto roof level utilising the former lift 2A lift shaft.

- Existing above ground drainage runs across existing offices 23-32, 33-35, 47-50, 51, 47 and 49 and appears to serve the first floor WC's.

- Incoming power supplies located on the rear wall of the existing kitchen, the suite is currently provided with two number single phase metered supplies each appear to be rated at 20 kVa. The supplies are taken from a landlord distribution board located in the main service riser adjacent to staircase 1 at Exchange level.

- Fire alarm coverage is provided from the landlord's central system, the loop appears to enter the demise into room 41 from the adjacent corridor ceiling of staircase 1 core, the loop exits the demise from room 49 into the corridor from staircase 2. The

existing system does not cover all rooms spaces within the current configuration of the office layout.

- Incoming communications connections are currently provided into room 44, the infrastructure appears to consist of a copper multi-core cable and a blown fibre terminated into BT DP boxes.

- The offices are served by a perimeter heating system fed from the buildings LTHW heating system. The external façade is provided with a single pipe heating loop with cast iron column radiators. The internal offices are fed from separate heating pipework from the corridor between the Exchange shopping centre and offices 42, 44, 46, 48, 50 and 51 with the radiators located on the walls between the offices.

- All of the offices are naturally ventilated with openable windows to the external offices and high level louvres in the upstands to the roof lights. At present the louvres are open and allow untempered and unfiltered fresh air to circulation via the open ceiling void into the office space via ceiling egg crate grilles.

- An existing fire rated duct passes from the Exchange shopping centre across rooms 51 (kitchen) and 49 and rises within the former lift 2A lift shaft and, presumably, discharges to atmosphere at roof level. Whilst this duct is not currently operational there may well be lease agreements in place which prohibit the removal or repositioning of this duct. CWC have not undertaken any further investigations in respect of this.

- Water services are provided from the buildings cold water services with local electric point of use water heater to the kitchen together with a pumped drainage system.

- Above ground drainage serves the first floor toilets and is located at high level above rooms 47 and 49.

1.3 Overall Scope of Refurbishment

It is proposed that the suite of offices is stripped out to create a single open plan suite to a Cat A standard allowing a future tenant to fit-out on a defined cellular basis where necessary.

2.0 Existing Mechanical, Electrical & Public Health Services

2.1 Strip out

- All existing lighting and power wiring will be stripped out and removed back to the existing distribution boards.
- Distribution boards and supply cables back to the Staircase 1 riser will be stripped out.
- Existing lighting and power accessories will be stripped out.
- **Fire alarm installation to be retained**, all devices to be isolated and protected during strip out of suite, to allow future reconfiguration.
- Existing BT infrastructure will be retained, the fibre and copper cables pulled back into adjacent landlord corridor ceiling void for potential re-use by future tenant.
- Existing data cabinet, cabling and outlets to be stripped out.
- Reuse existing cast iron column radiators. To be shot blast and repainted.

3.0 Mechanical, Electrical & Public Health Proposals

3.1 Mechanical Services

Low Temperature Hot Water Heating

It is proposed that the existing Low Temperature Hot Water (LTHW) Heating system is retained, however, consideration should be given to the provision of the raised access floor. The existing perimeter heating to the Cross Street external elevation single pipe loop leaves a clear space of only 70-75mm and, at present, the pipework and cast iron column radiators are enclosed within an architecture timber enclosure with ventilation openings covered by perforated sheets to the top and front of the timber enclosure.

The cast iron column radiators positioned in the internal corridors and offices, Rooms 42, 44, 46, 48 & 51, require repositioning to the retained walls with the pipework modified accordingly.

To accommodate the raised access floor there are 2 options that should be considered.

Option 1: retain the existing perimeter heating, to the Cross Street elevation, including heating pipework.

If the existing timber radiator enclosures are removed this would result in a raised access floor of 65mm maximum overall and would place a significant restriction upon the flexibility of the raised access floor and the distribution of power and data networks.

Should the timber radiator enclosures be retained or replaced a more conventional raised access floor of 100-150mm clear void could be utilised. This would offer more flexibility within the office space.

Option 2: remove the existing timber radiator enclosures and replace the existing perimeter heating pipework and radiators to increase the clearance below the pipework to allow a raised access floor to be installed.

As discussed above the raised access floor should provide 100-150mm clear void to ensure a 'usable' and flexible space is provided.

Where the existing cast iron column radiators are to be reused we would recommend that they are removed and restored (by shot blasting and cleaning) and re-painted.

Ventilation

It is proposed that the space is provided with natural ventilation, as the current arrangement, with the high level louvre openings within the roof light upstands are provided with motorised control dampers and internal grilles.

The control dampers will be provided with individual local controls to open and close the dampers to provide local occupant control.

Above Ground Drainage and Rainwater Installation

The existing above ground drainage installation at high level in rooms 47 and 49, which serves the 2nd floor, must be retained and will impact upon the final ceiling solution to satisfy the Listed Building Officer.

The existing kitchen area is provided with a pumped drainage system, this is due to the location of the kitchen and the above ground drainage system.

The location of the proposed kitchen is the same as the existing, therefore, it is proposed that the existing pumped drainage solution is adopted with the drainage pump replaced to ensure the integrity of the installation.

The existing rainwater installation should be retained, however, it is recommended that these are enclosed within a builders work boxing out arrangement.

Domestic Hot and Cold Water Services

Potable cold water service is provided to the existing kitchen area with domestic hot water service provided by an electric point of use water heater.

It is proposed that the existing cold water service is retained to serve the new kitchen, however, it is recommended that the electric water heater is replaced to ensure the integrity of the installation.

Existing Shopping Centre Ventilation Ductwork

The existing fire rated extract ventilation ductwork which serves the mothballed shopping centre must be retained.

It is recommended that the ductwork is enclosed by a proprietary ceiling system which offers acoustic properties to minimise any noise transmission into the office should the shopping centre ventilation system become operational.

3.2 Electrical Services

Incoming Services

New distribution equipment will be installed comprising of a three phase distribution board located in a position to be agreed. The new distribution board will be supplied from the existing tenant distribution panel within the Staircase 2 riser and will be provided with check metering.

The new supply cable will be routed on existing containment systems within the landlord corridors.

The communications connections will utilise the existing BT infrastructure if appropriate for the future tenant, alternatively the tenant may install new infrastructure from the basement level BT distribution equipment using the existing containment routes within the staircase 2 riser and corridor ceiling void.

Fire alarm coverage will be provided by reconfiguration of the existing landlord's detection and sounder loops.

Lighting

A new lighting installation will be provided throughout the suite meeting the requirements of CIBSE LG7 and will comprise of the following luminares:

- Suspended direct/indirect continuous fluorescent luminaires with high frequency control gear and T5 lamps.
- Recessed 600mm x 600mm fluorescent luminaires with high frequency ballasts and T5 lamps.

The suspended luminaires will provided an upward component of light to illuminate the existing exposed glass block ceiling meeting the requirements of the planning officer.

The recessed 600mm luminaires will be installed along the Cross Street elevation of the suite into the proposed suspended ceiling.

The lighting will be controlled via presence sensors arranged to switch agreed zones within the office suite.

Power

The power installation will be restricted to a number of cleaner's sockets the outlets shall be provided so that no point of the suite is more then 10m in distance from an outlet. It is proposed that the sockets are installed within recessed floor hives to restrict impact on the perimeter finishes and allow future flexibility.

No tenant power provision will be provided within the Cat A fit out, it is intended the tenant will install his power supply from the spare outgoing ways on the new distribution panel utilising under floor busbar track in conjunction with recessed floor boxes.

Data/Communications

The data installation will utilise the floor void of the suspended floor system a 'backbone' route of basket containment will be installed from each and of the suite to allow installation by the tenant of his data network.

Fire Alarms

The existing fire alarm installation will be re-configured to provide an automatic detection system throughout the suite meeting the requirements of BS5839 for an L1 system, the coverage will be arranged to accommodate an open plan arrangement.