



# BRAIDEN ACOUSTICS LTD

Innovation Forum | 51 Frederick Road | Salford | Manchester | M6 6FP

## NOISE IMPACT ASSESSMENT

Prepared For : ESQ.HAIR LTD

Date : 5 Feb 2024

Site : Unit 3, Lampwick Quay, Old Mill Street, Manchester

Report No. : 11250

### 1 INTRODUCTION

Braiden Acoustics has been commissioned by ESQ.HAIR LTD to undertake an acoustic survey at the site of Unit 3, Lampwick Quay, Old Mill Street, Manchester in order to discharge noise conditions related to planning application 116190/FO/2017 which is a residential development with 4no. commercial units.

This report relates to one of the commercial units that proposes to be a hairdresser.

#### 1.1 PLANNING PERMISSION

The 4no. commercial units will front Old Mill Lane, as shown in **Error! Reference source not found.**



Figure 1  
Lampwick Quay development, showing commercial units

Panning application 116190/FO/2017 which proposed the following:

*Erection of a part 6-part 10 storey building together with 5 storey link building to form 213 residential apartments with ground floor commercial space (300 sq. metres) (use classes A1, A2, A3, B1 and D1 - excluding a place of worship) with associated car parking, hard and soft landscaping, access off Upper Kirby Street and other associated works.*

The relevant noise conditions are as follows:

*13) Notwithstanding the noise assessment prepared by Arup stamped as received by the City Council, as Local Planning Authority, on the 5 May 2017, prior to the first use of the commercial units as indicated on P-12500 Rev B stamped as received by the City Council, as Local Planning Authority, on the 5 May 2017, a scheme of acoustic insulation shall be submitted for approval in writing by the City Council, as Local Planning Authority. The approved scheme shall be retained and maintained for as long as the development remains in use.*

*Reason - In order to limit the outbreak of noise from the commercial premises pursuant to policies SP1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).*

*21) The 4 commercial units hereby approved, as indicated on drawing P-12500 Rev B stamped as received by the City Council, as Local Planning Authority, on the 5 May 2017, shall not be open outside the following hours:-*

*Monday to Saturday 08.00hrs - 23.00hrs*

*Sundays 09.00hrs - 23.00hrs*

*There shall be no amplified sound or any amplified music at any time within the units.*

Reason - In interests of residential amenity in order to reduce noise and general disturbance in accordance with saved policy DC26 of the Unitary Development Plan for the City of Manchester and policies SP1 and DM1 of the Core Strategy

In summary, the noise conditions relate to the following:

- Condition 13 Noise breakout from the commercial units to nearby residential units due to operational noise limits.
- Condition 21 Hours of operation are not outside of the hours of 08:00 / 09:00 to 23:00; thus only operating during day time hours.

## 1.2 NOISE LIMITS

In an acoustic survey from the landlord's acoustic consultant, Arup, dated May 2017, noise levels have been set out for commercial tenants.

### 1.2.1 Internal operation noise limits

For operation noise limits, it is assumed that the commercial unit is directly underneath the residential dwellings above. When this is the case the allowable upper octave band noise levels are taken from Table 4 of Arup's report mentioned above:

| Sound pressure level (dB) at each octave band centre frequency (Hz) |     |     |     |    |    |    |
|---------------------------------------------------------------------|-----|-----|-----|----|----|----|
| 63                                                                  | 125 | 250 | 500 | 1k | 2k | 4k |
| 77                                                                  | 78  | 76  | 82  | 78 | 70 | 60 |

Table 1

Upper operation octave band levels for commercial units directly under residential units

### 1.2.2 External plant noise limits

Upper noise levels, in the same way as the operational noise levels above, have been determined in the original Arup acoustic report and are given in Table 3 in the report.



| Representative of                                            | Period        | Typical background level, dBL <sub>A90, T</sub> | Plant noise limit, dBL <sub>A,r,Tf</sub> |
|--------------------------------------------------------------|---------------|-------------------------------------------------|------------------------------------------|
| Noise sensitive receptors on the Stubbs development          | 07:00 – 23:00 | 48                                              | 43                                       |
|                                                              | 23:00 – 07:00 | 41                                              | 36                                       |
| Noise sensitive receptors in Chips                           | 07:00 – 23:00 | 45                                              | 40                                       |
|                                                              | 23:00 – 07:00 | 41                                              | 36                                       |
| Noise sensitive receptors in the Old Mill Street development | 07:00 – 23:00 | 49                                              | 44                                       |
|                                                              | 23:00 – 07:00 | 42                                              | 37                                       |
| Noise sensitive receivers in houseboats*                     | 07:00 – 23:00 | 47                                              | 42                                       |
|                                                              | 23:00 – 07:00 | 43                                              | 38                                       |
| Noise sensitive receivers at the front of Vesta              | 07:00 – 23:00 | 48                                              | 43                                       |
|                                                              | 23:00 – 07:00 | 42                                              | 37                                       |
| Noise sensitive receivers at the rear of Vesta               | 07:00 – 23:00 | 45                                              | 40                                       |
|                                                              | 23:00 – 07:00 | 41                                              | 36                                       |

Figure 2  
Plant noise limits at 1 m from the nearest noise sensitive premises to the west

### 1.3 AIM

This report shall assess all the relevant noise sources so that the relevant noise conditions can be discharged.

## 2 DESCRIPTION OF SITE

The commercial units front Old Mill Street, with Unit 3 shown in Figure 3.

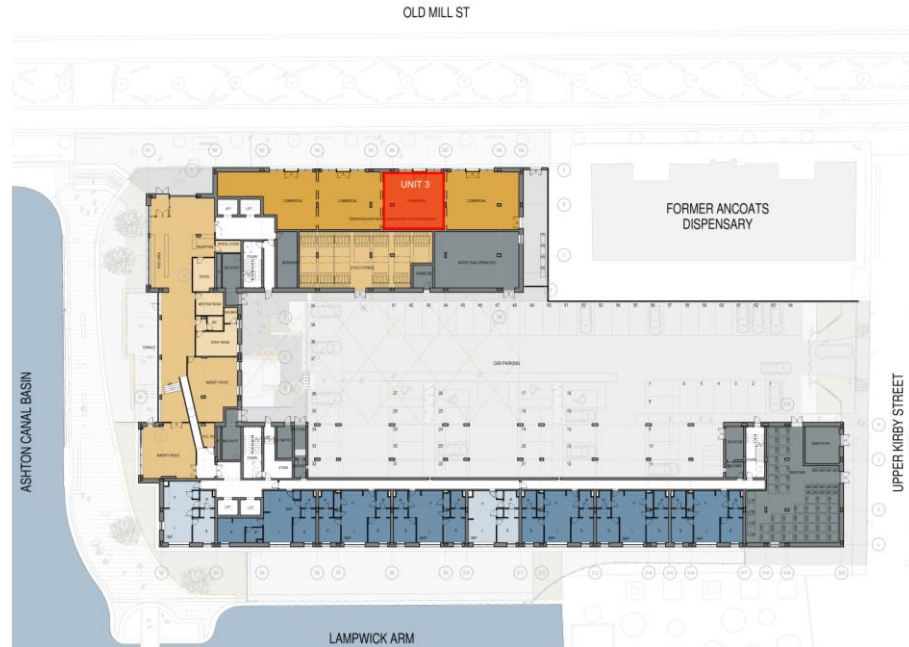


Figure 3  
Proposed ground floor plan



## 2.1 SITE LOCATION AND SURROUNDING USES

The overall site is bounded by Old Mill Street to the north west, the Ashton Canal basin to the south west, Lampwick Arm (canal) to the south east and Upper Kirby Street to the west.

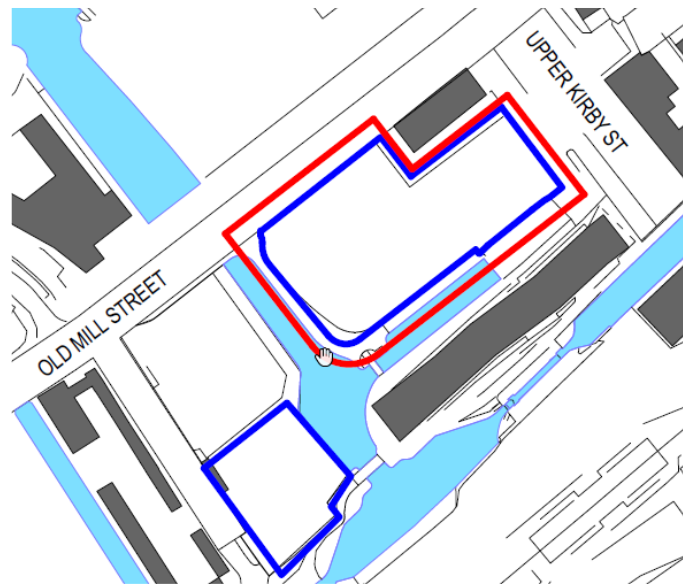


Figure 4  
Site location

## 2.2 PROPOSED USE – UNIT 3

It is proposed to have a ground floor unit for a hairdresser.

The main ground floor will be comprised of:

- Reception area,
- Waiting area,
- 3No. stylist stations,
- 1No. backwash stations,
- new dda and toilet,
- refreshments area
- staff room and
- store room.



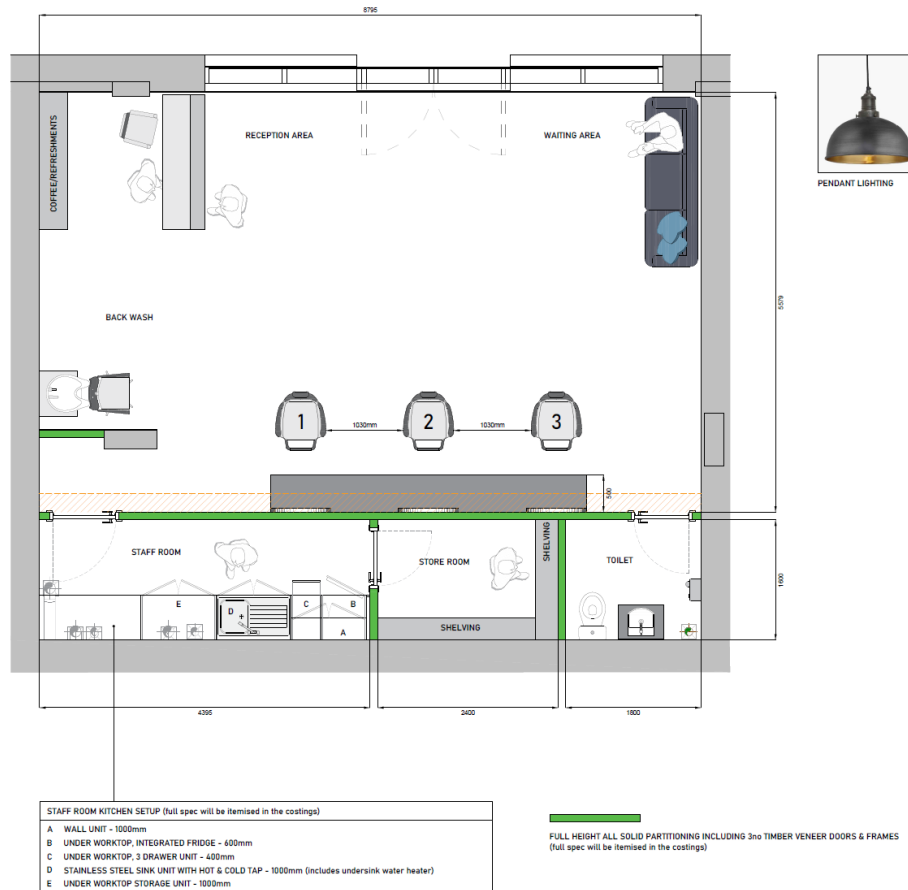


Figure 5  
Proposed ground floor layout of Unit 3

#### 2.2.1 Opening hours

Monday-Friday 8am-8pm

Saturday 8.30am-4pm

Sunday - closed

#### 2.2.2 Building services

There are no proposed building services for Unit 3.

#### 2.2.3 Sound system

The exact sound system has not been determined yet but it is likely to only employ 'satellite' loudspeakers such as the Sonos system.

### 3 ACOUSTIC CRITERIA AND METHODOLOGY

#### 3.1 BS 4142

BS 4142:1999 "Method for rating industrial noise affecting mixed residential and industrial areas" [1] assesses industrial noise with regards to nearby residential dwellings. The guidance is commonly used to compare the equivalent noise from an industrial source only (*specific noise level*),  $L_{Aeq}$ , to the background noise level,  $L_{A90}$ , at the nearest sensitive receptor (NSR).



This Standard has been recently updated, BS 4142:2014 “Methods for rating and assessing industrial and commercial sound” [2]. Whereas the old standard added 5dB ‘penalty’ to the Specific Noise Level (SNL) if the noise source has a ‘character’ that can draw attention that may be described as tonal, intermittent or impulsive, the new standard gives clearer guidance on noise ‘character’. Furthermore, the previous Standard gave only one 5 dB penalty whereas the new Standard may not. When added to the specific noise level it forms the rating level. The new Standard gives the guidance for the following types of noise character:

*Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed.*

*Correct the specific sound level if a tone, impulse or other characteristic occurs, or is expected to be present, for new or modified sound sources.*

*NOTE 1 The prominence of tonal or impulsive sound from a source can be masked by residual sound. In many cases the amount of masking varies as the residual sound changes in level and possibly character. The source’s tonal and/or impulsive characteristics could also vary with time.*

*Consider the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention.*

#### *Tonality*

*For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.*

#### *Impulsivity*

*A correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible and 9 dB where it is highly perceptible.*

#### *Other sound characteristics*

*Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.*

*NOTE 2 Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections ought normally to be added in a linear fashion.*

#### *Intermittency*

*When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.*

Once a penalty for noise character is added to the Specific Noise Level then this is termed the Rating Level.

The background level is then compared to the rating level. It is usual that the rating level due to the source should be below the background noise level at the nearest sensitive receptor; indeed BS 4142 states:

*“The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. **Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.**”*



### 3.2 BS 8233: 2014

The British Standard BS 8233:2014 “Guidance on sound insulation and noise reduction for buildings” gives guidance on recommended indoor ambient noise levels for residential dwellings.

| Room             | Criterion | $L_{Aeq,T}$ |     |
|------------------|-----------|-------------|-----|
|                  |           | night       | day |
| Bedroom          | Sleeping  | 30          | 35  |
| Dining Room/Area | Dining    | --          | 40  |
| Living Room      | Resting   | --          | 35  |

Table 2

*Recommending indoor ambient noise level thresholds from anonymous noise (taken from Table 4, BS 8233:2014)*

Internal levels are simply predicted by the subtraction of the estimated sound reduction index (SRI) of the building façade from the external free field noise measurements. When considering the SRI of a particular façade it is usual to only consider the glazing as this is the weakest element acoustically.

### 3.3 COUNCIL CRITERIA

The upper noise levels given in Section 1.2 will ensure that MCC’s noise limits for noise ingress and external plant will be met.

## 4 MEASUREMENT DETAILS

### 4.1 INTERNAL NOISE MONITORING

Noise monitoring of the typical internal noise took place at a similar hairdressers called David Rozman in Manchester. Whilst the acoustics in the current site may differ from the proposed site, the measured noise levels will give an indication of the noise levels at the new site.

#### 4.1.1 Monitoring details

Personnel: John Braiden, BSc & MSc Acoustics, MIOA.

Weather: n/a.

Equipment: NTi XL2 integrated real time analyser & B&K 4231 calibrator.

Date: Wed 7<sup>th</sup> December 2022

The sound level meter was calibrated before after the measurements with no drift reported.

Monitoring was unmanned.



#### 4.1.2 Monitoring results

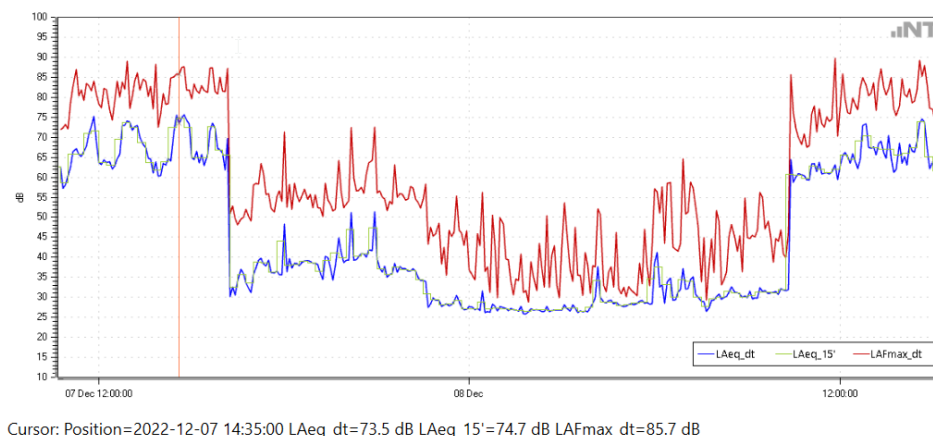


Table 3  
Time history of internal noise monitoring results

The highest 15-minute equivalent internal noise level was 74.7dB(A).

## 5 ACOUSTIC ASSESSMENT

### 5.1 EXTERNAL PLANT NOISE ASSESSMENT

There are no proposed external plant.

### 5.2 INTERNAL NOISE LEVEL

Operation noise levels of the existing David Rozman site has been measured by Braiden Acoustics and compared with the noise limits given by Arup and shown in Table 1.

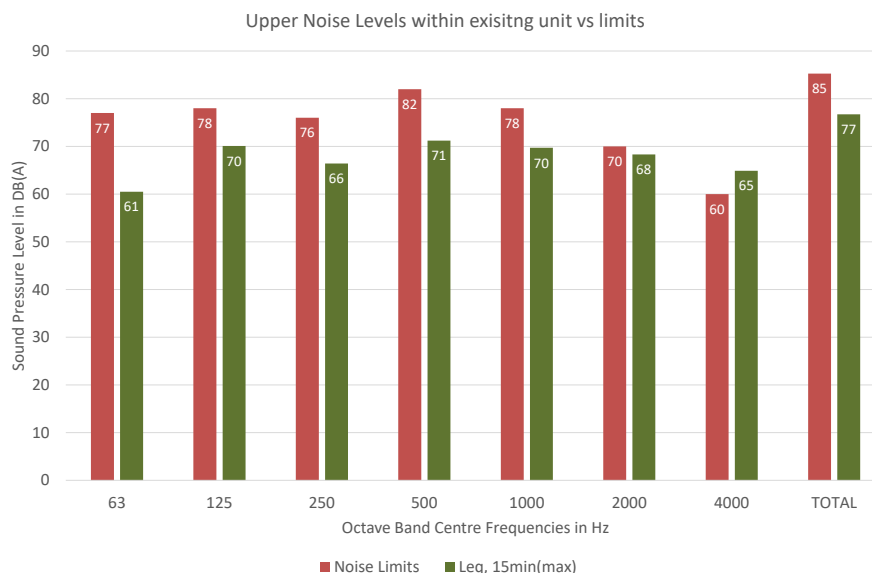


Figure 6  
Hairdresser noise levels vs limits

As Figure 6 above shows, the typical upper noise levels in a similar hairdresser's site between 14:30 14:45, have been shown to be below the limits, except for at the 4kHz frequency band. However, a modest exceedance at 4kHz should not be an issue, as higher frequencies are not likely to travel through the building.



**NB\*\* It should be noted that the predicted overall noise level is 8dB less than the overall noise limits determined by Arup.**

## **6 CONCLUSION**

An acoustic survey has taken place at Unit 3, Lampwick Quay, Old Mill Street, Manchester to assess noise levels from the proposed external plant and operation noise.

The assessment has revealed that there will not be any external plant.

The operational noise is also within the limits laid down by the landlord's acoustic consultant. Therefore, Condition 13 can also be discharged.

## **7 REFERENCES**

- [1] BS 4142: 1997  
*Method for Rating industrial noise affecting mixed residential and industrial areas*  
British Standards Institute, 1997.
- [2] BS 4142: 2014  
*Methods for rating and assessing industrial and commercial sound*  
British Standards Institute, 2014.

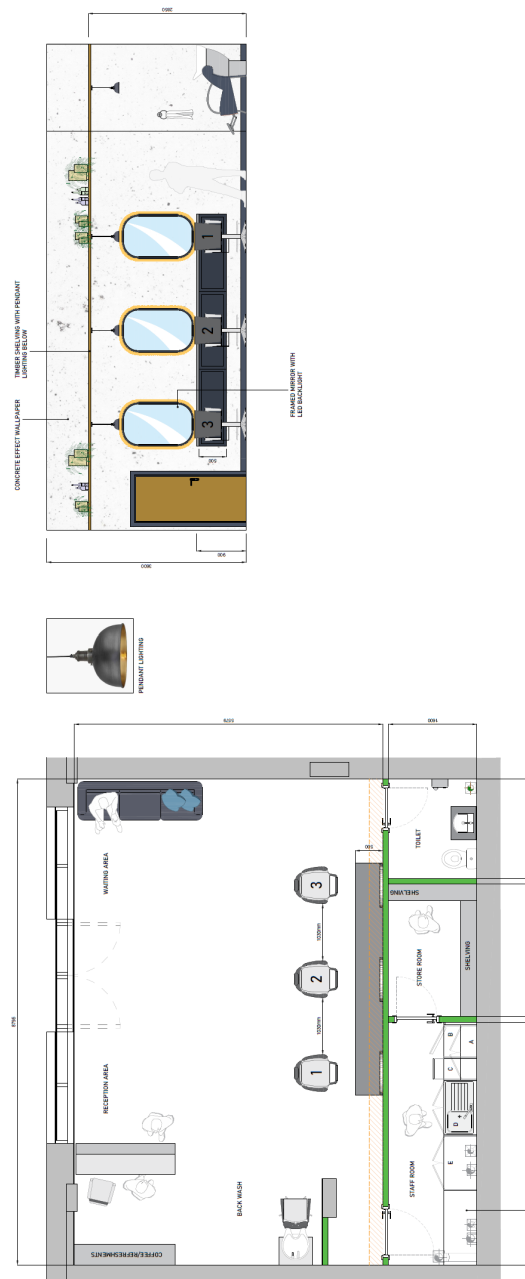


## Appendix



## PROPOSED GENERAL ARRANGEMENT

SCALED @ 1:50



STAFF ROOM KITCHEN SETUP (full spec will be itemised in the costings)

- A. WALL UNIT - 1030mm  
B. UNDER WORKTOP INTEGRATED FRIDGE - 605mm  
C. UNDER WORKTOP, 3 DRAWER UNIT - 405mm  
D. STAINLESS STEEL SINK UNIT WITH HOT & COLD TAP - 1005mm (includes under-sink water heater)

- FULL HEIGHT ALL SOLID PARTITIONING INCLUDING 2nd TIMBER VENEER DOORS & FRAMES  
(Full spec will be furnished in the castings)

**DO NOT SCALE OFF THIS DRAWING**

## NOTES

|                                   |            |           |
|-----------------------------------|------------|-----------|
| REGION                            | RESCEPTION | DATE      |
| <b>WORK IN PROGRESS</b>           |            |           |
| CLIENT                            |            |           |
| ES0                               |            |           |
| PROJECT                           |            |           |
| UNIT 3 OLD MILL STREET MANCHESTER |            |           |
| DRAWING TITLE                     |            |           |
| PROPOSED BARBERS LAYOUT           |            |           |
| PROJECT NO.                       | 10209      | SHEET     |
| DATE                              | 22.11.2023 | SCALE     |
| DRAWN BY                          | SJ         | 1:50 @ A1 |
| CHECKED BY                        | AS         | DATE      |
| PROJECT NO.                       | 10209      | DATE      |
| DRAWN BY                          | SJ         | SCALE     |
| CHECKED BY                        | AS         | 1:50 @ A1 |
| PROJECT NO.                       | 10209      | DATE      |
| DRAWN BY                          | SJ         | SCALE     |
| CHECKED BY                        | AS         | 1:50 @ A1 |



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