

MEMO P23-371-M02v1

Project	New MCWFC Training Facility, Etihad Campus
Date	28 June 2024
To	Pete Mealing – Manchester City FC, Samantha Lee - P4 Planning
From	George Zelenovic BSc MSc MIOA – Consultant
Subject	Desktop acoustics review of proposed sub-station

Following our recent contact, this memo sets out the findings of our acoustics review of the proposed sub-station to be installed in connection with the approved MCWFC training facility at the Etihad Campus.

We understand that because the proposed sub-station is outside the red line of the approved MCWFC training facility, a separate planning application is required. Nevertheless, our assessment has been based upon meeting the requirements of Condition 25a of Manchester City Council (MCC) planning consent for the training facility (ref. 138987/FO/2024). This requires submission of an assessment of the requirements for any noise control measures in order to comply with the MCC noise criteria as described in our noise assessment report ref. P23-371-R01v3 dated December 2023.

The proposed location of the sub-station is shown in **Figure 1** and details of the sub-station enclosure are shown in **Figures 2 & 3**.

Noise Control Requirements

The measured baseline noise levels at the site, taken from our 2023 noise assessment are as follows:

Table 1: Summary of Noise Levels Measured (dB)

Description	Summary of Measured noise levels			Adopted representative background sound level $L_{A90,15min}$
	Range of $L_{Aeq,T}$	Mean $L_{A90,15min}$	Mode $L_{A90,15min}$	
Daytime period (07:00 – 23:00)	60 - 66	56	56	56
Evening period (19:00 – 23:00)	59 - 61	53	51	51
Night Period (23:00 – 07:00)	52 - 62	46	43	43

On the basis that the MCC noise control criterion requires the sub-station noise to be 5 dB below the relevant background noise levels, the following noise limits are therefore applicable:

Table 2: Cumulative Buildings Services Plant Rating Level Design Limits (dB $L_{Ar,Tr}$)

Location	Day (07:00 -19:00)	Evening (19:00 -23:00)	Night (23:00 -07:00)
At nearest dwellings to the north-east	51	46	38

Sub-Station Noise

The proposed layout drawings and manufacturer's source noise data for the equipment has been provided by the project M&E consultants SVM Building Services Design.

The sub-station equipment will be as follows:

Table 3: Cumulative Buildings Services Plant Noise Level – all items operating (dB)

Equipment	Source sound pressure level in dB L_{Aeq} at 1m
500kVA Tier-2 Tx Transformer	500kVA Tier-2 Tx Transformer

This is equipment will be housed within the proposed GRP (glass reinforced plastic) enclosure with ventilation louvres.

Noise Calculations

We have calculated the likely resulting sub-station noise level outside the nearest dwellings. The calculation takes into account manufacturer's source noise levels with a correction for noise propagation to the nearest dwellings including only attenuation of sound over distance (160m). No account has been taken of the sound insulating effects of the proposed GRP enclosure

Taking the above into account, we calculate that the resulting noise levels outside the nearest dwellings will be below 10 dB L_{Aeq} .

We do not anticipate that the equipment will produce any significant tonal or impulsive noise that would be audible at the dwellings. Furthermore, the noise from the equipment will be generally steady. On this basis, no character corrections in line with BS 4142: 2014 are appropriate and the corresponding rating level of noise is therefore <10 dB $L_{Ar,Tr}$.

As such, we predict that sub-station noise levels will be well below the very lowest relevant noise limit of 38 dB $L_{Ar,Tr}$ outside the nearest/most exposed dwellings.

Therefore, on this basis no noise control measures are warranted.

Indeed, we consider that the noise levels are anticipated to be so low that the MCC usual requirement for noise verification measurements is unwarranted in this case and no related planning condition is necessary.



Key:

Not to scale

 - Approximate site boundary

 - Nearest Dwellings

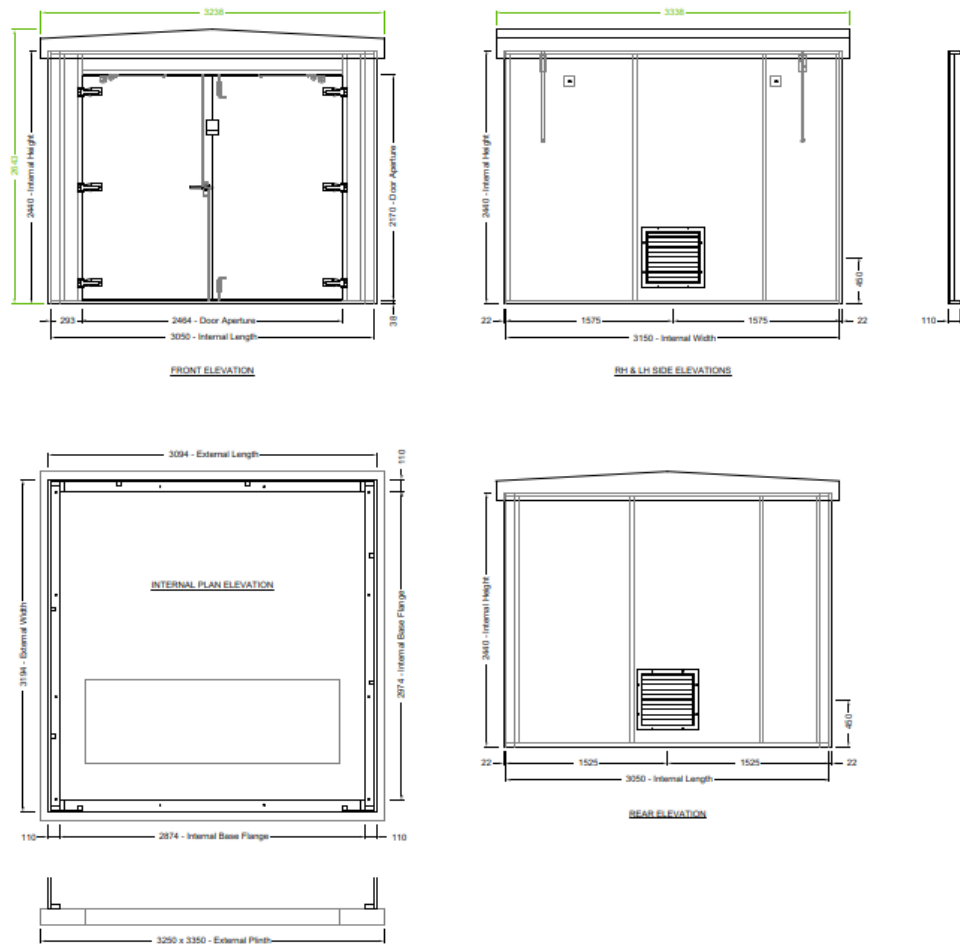
 - Sub Station Location



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Title: Figure 1: Site Layout

Project: P23-371



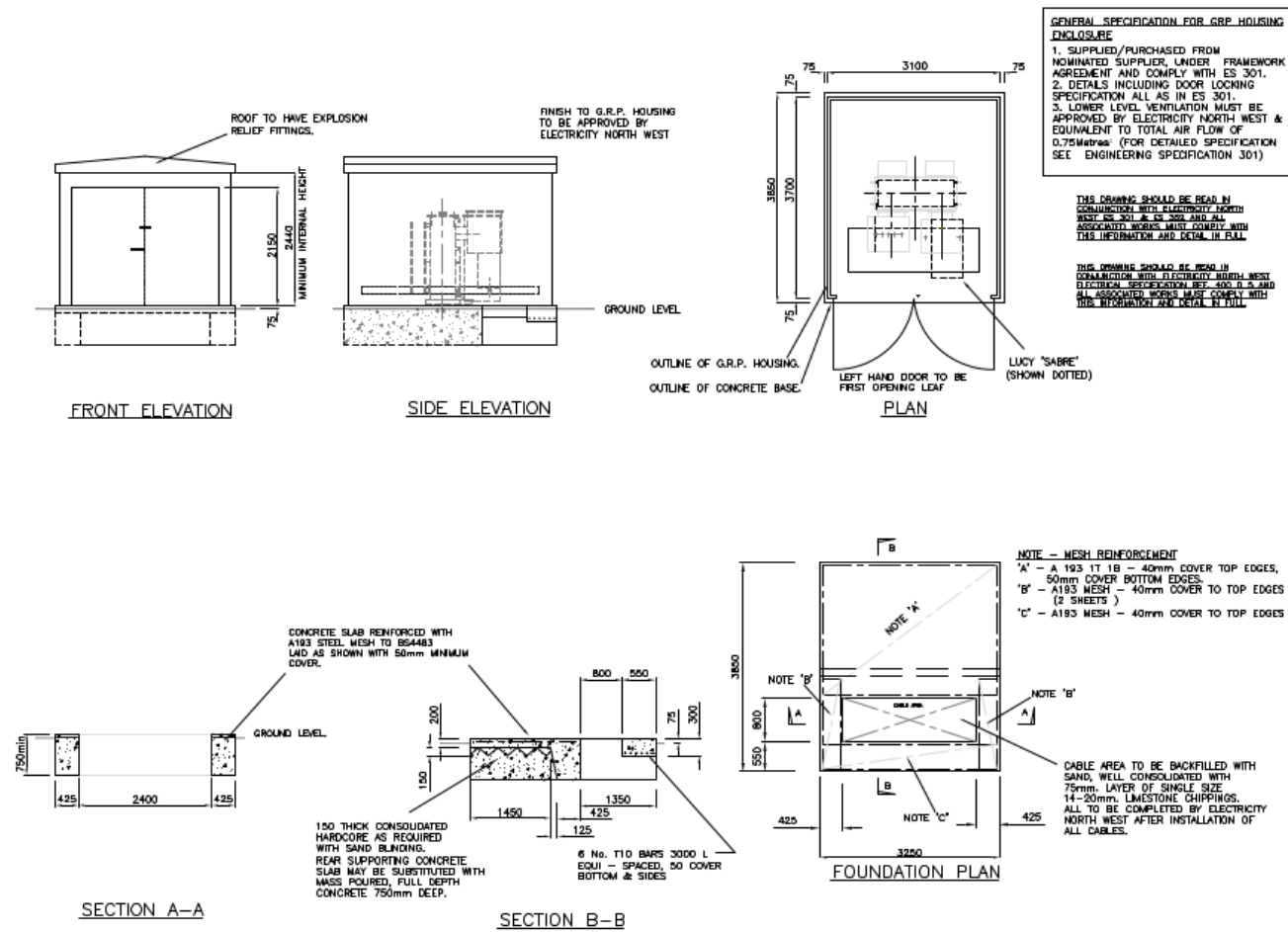
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Title: Figure 2: External Sub
Station Layout

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Title: Figure 3: Internal Sub Station Layout

Project: P23-371