

VICTORIA HOUSE MANCHESTER

Planning Condition 5 Statement
Ref: P1389-RPT-PLA5-001 Rev A

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AMENDMENT HISTORY



REVISION	DESCRIPTION	DATE	AUTHOR	CHECKED
A	Initial Issue	July 2022	B. Quinn	B. Duckworth

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1 INTRODUCTION

As a part of the planning requirements of the project, MCC require the following to be reviewed:

Planning Condition 5

Prior to any installation of the proposed substation, details of any potential Electro Magnetic Compatibility impacts with the operation of Metrolink shall be submitted along with details of any necessary mitigating Electro Magnetic Compatibility protection measures that are found to be required as a result of the introduction of the substation shall be submitted to and approved in writing by the City Council as Local Planning Authority before development commences. Any approved mitigation shall be put in place prior to the use of the substation commencing

1.1 SITE LOCATION & CONTEXT

Victoria House is a residential building within Manchester. The 24-story development consists of 177 apartments, with amenity of a gym and reception.

The substation is located off Longacre Street.



Figure 1 Image of Victoria House

2 PLANNING CONDITION 5 STATEMENT

To discharge the condition, the following is a summary of the difference between Electric and Magnetic Fields

The term 'EMFs' encompasses two different though related concepts: electric fields and magnetic fields.

2.1 ELECTRIC FIELDS

Electric fields are produced by voltage. Voltage is the pressure behind the flow of electricity. It can be likened to the pressure of water in a hose.

Electricity in UK homes is at a voltage of 230 volts (V), but outside homes it is distributed at higher voltages, from 11,000 volts (usually written 11 kV) up to 400,000 volts (400 kV). Generally, the higher the voltage, the higher the electric field. Electric fields are measured in volts per metre (V/m).

2.2 MAGNETIC FIELDS

Magnetic fields are produced by current, which is the flow of electricity. Current, which is measured in amperes or amps, can be likened to the flow of water in a hose when the nozzle is open. Generally, the higher the power and the current, the higher the magnetic field. Magnetic fields are measured in microteslas (μ T).

2.3 OTHER DIFFERENCES

One difference between electric and magnetic fields is that electric fields are very easily screened - by buildings, hedges, fences and trees. So, inside a house there will be very little electric field from a power line outside. By contrast, magnetic fields pass readily through most buildings. Another difference is that a mains appliance such as a radio or lamp does not have to be operating to produce an electric field - as long as it is plugged into mains supply it will produce an electric field. However, it produces a magnetic field only when it is turned on and drawing a current.

EMF Units

Electric Fields	
Usually measured in volts per metre (V/m) Multiple used for large fields:	1 kilovolt per meter (kV/m) = 1,000 volts per metre
Magnetic Fields	
Usually measured in microteslas (μT) Multiple used for large fields: or small fields: Other units sometimes used	1 millitesla = 1,000 microteslas 1 nanotesla = 0.001 microteslas 1 milligauss = 0.1 microteslas

Instruments that measure field levels normally give an average value called the "root mean square".

2.4 SUBSTATIONS

Small electricity distribution substations, typically one for every few hundred homes, generally produce up to 2 microteslas close to their perimeter fence (occasionally more if built into another building, usually less for

pole-mounted transformers), and often no electric field at all. The fields fall rapidly with distance and, within 1 to 2 metres from a typical substation, the fields associated with it are usually indistinguishable from other fields present in homes. Larger electricity transmission substations do not produce very large fields themselves (less than a microtesla); the fields close by are mainly produced by power lines and cables entering them. There is no restriction on EMF grounds on how close houses can be to substations.

2.5 SITE COMMENTARY

The Government sets guidelines for exposure to Electric and Magnetic Fields (EMFs) in the UK as follows:

- 100 microteslas for magnetic fields
- 5000 volts per metre for electric fields

These are the levels above which more investigation is needed to meet Government guidance.

Victoria House Substation EMF Levels:

- 2 microteslas
- 100 volts per metre

These levels are negligible and well below the recommended levels whereby further investigation would be required.

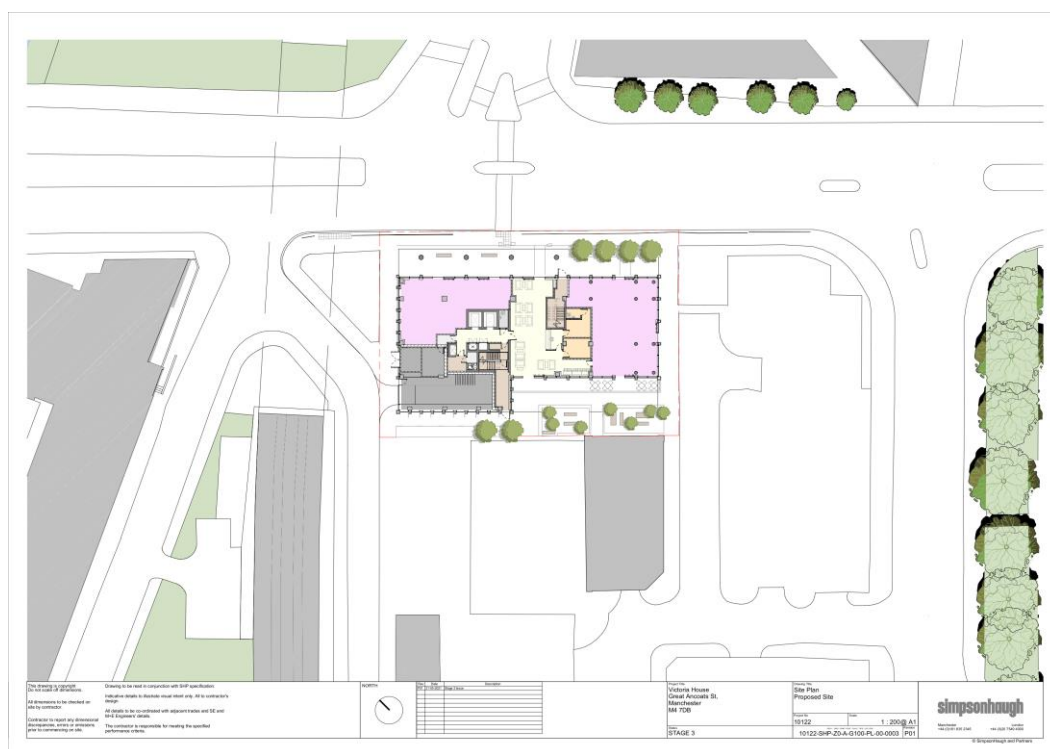


Figure 2 Ground Floor Plan

The fields fall rapidly with distance and, within 2 metres from the substation, the fields associated with it will be indistinguishable from other fields present in homes.

As the tram lines are approximately 10m from the substation there will be no adverse effects or mitigating measures required, as can be seen in Figures 2 and 3 below.

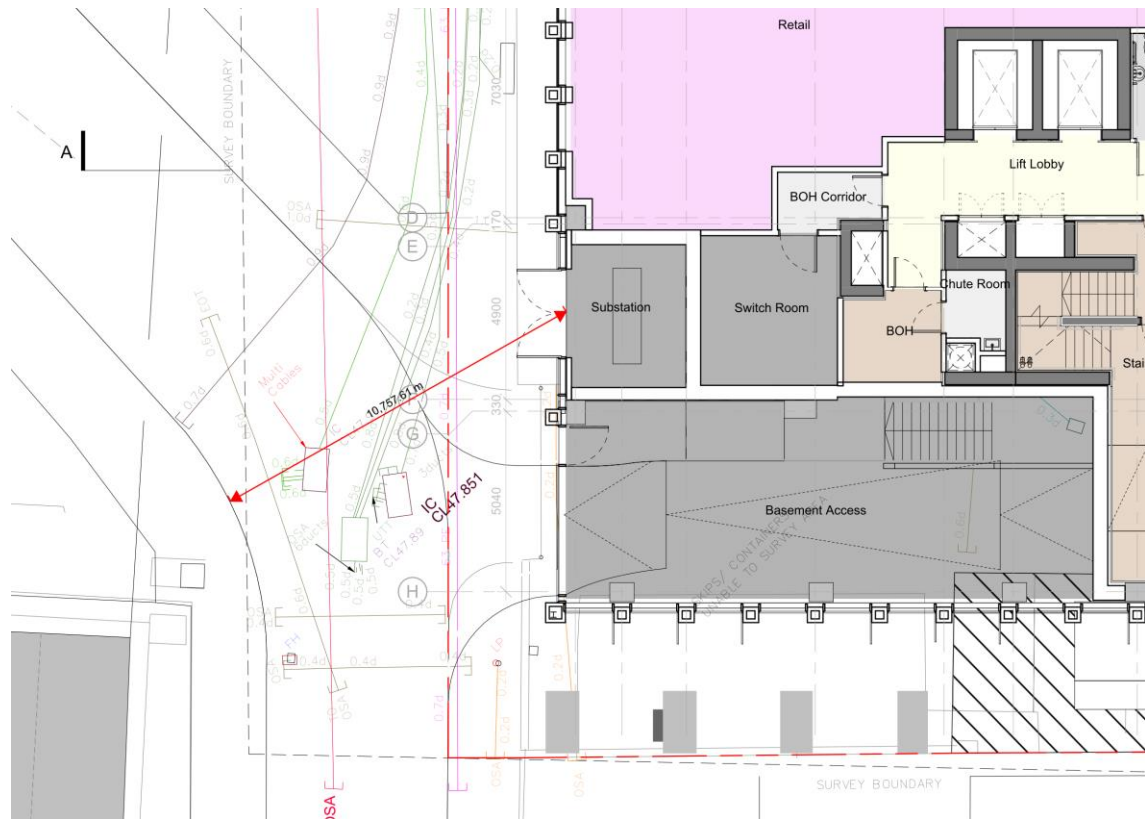


Figure 3 Ground Floor Detail