

Working safely near Metrolink

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Version 1



Transport for
Greater Manchester

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Introduction

This document has been produced to provide information to aid the understanding of what and who Metrolink are and what may be expected of you when working or developing near Metrolink.

Metrolink is the light rapid transit or tram network in Greater Manchester that is owned by Transport for Greater Manchester (TfGM) but is operated and maintained by Keolis Amey Metrolink (KAM).

While TfGM remains the asset owner of all Metrolink infrastructure, KAM looks after the network on a day-to-day basis and will need to be engaged when works are planned near lines, stops and depots.

Metrolink operates either in a street running environment or in segregated sections and the requirements and authorisations required for undertaking construction and/or maintenance works will differ depending on which situation applies.

In street running sections you will need to consider the Electrical Hazard Zone and the Metrolink Exclusion Zone around overhead line poles shown in Diagrams **M1** and **M3** respectively.

Where Metrolink operates in segregated sections the Metrolink Exclusion Zone, that also includes the Electrical Hazard Zone, will apply. This is shown in Diagram **M2**.

In addition to the overhead power lines and the trams moving around the network Metrolink has other infrastructure which can be seen above ground, but there is also equipment that is below ground and cannot be seen.

This includes drainage infrastructure and chambers and ducts carrying power and telecommunications. All of these elements need to be considered when developing or working near Metrolink



Common construction scenarios start on page 11. If you have further enquiries please get in touch using the contact details on page 28.

Metrolink Electrical Hazard Zone

The Metrolink tram network is powered by overhead power lines (OLE). These operate at 750 volts (DC) and are generally over 5 metres (around 18 feet) above the tracks.

These do not pose a danger to pedestrians and motorists at ground level or to those living and working in the vicinity of the tramway.

However, when working in the vicinity the potential hazards associated with working close to the overhead power lines needs to be taken seriously. We want you to stay safe near Metrolink.

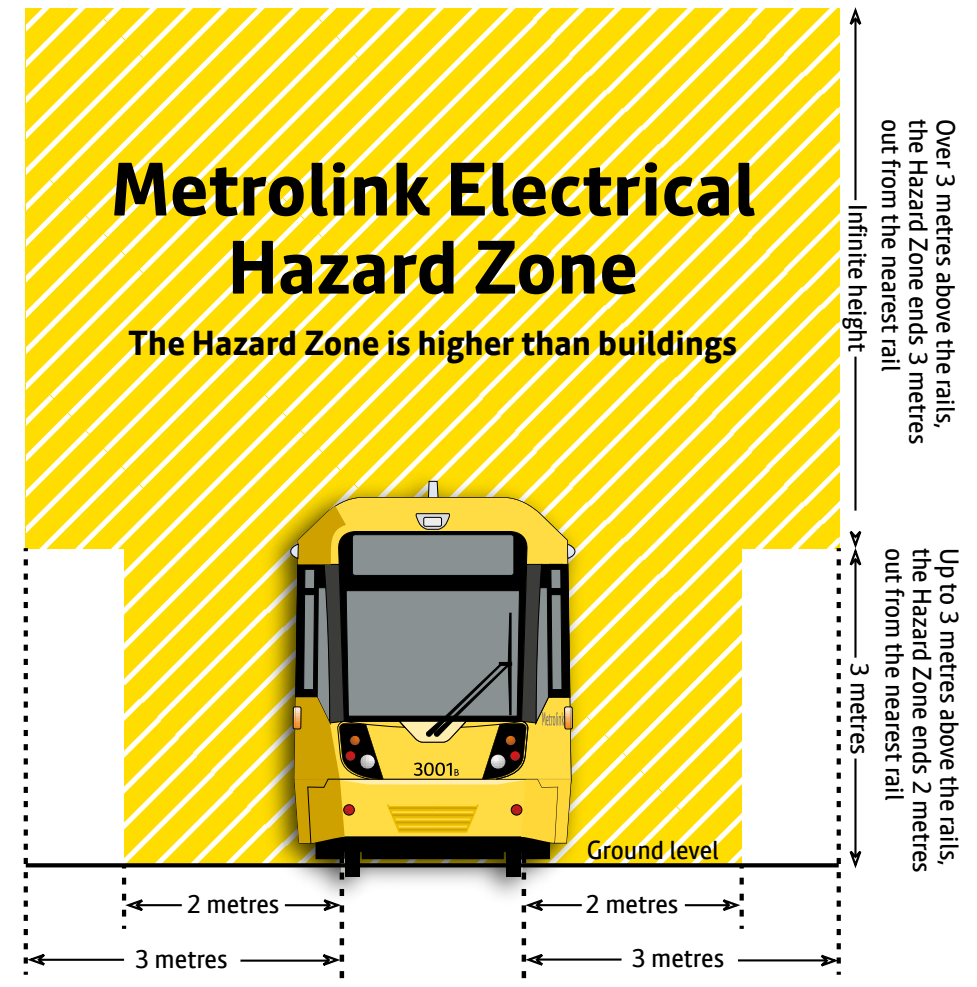
The Metrolink Electrical Hazard Zone, as shown in Diagram M1 on the next page, applies generally to street running sections.



No person shall enter this zone to undertake works or carry or operate any equipment that has potential to enter the zone without authorisation from Metrolink.

Diagram M1 – Metrolink Electrical Hazard Zone

Usually applicable in street running sections



Where there is more than one track, the whole area between the tracks is in the Hazard Zone

Metrolink Exclusion Zone

In addition to the Electrical Hazard Zone there are other areas that you must not work within unless you have authorisation, in combination these are defined as exclusion zones.

Street running

When trams are operating within a street environment the Metrolink Exclusion Zone includes the Electrical Hazard Zone as shown in Diagram M1 in addition to the individual exclusion zones around overhead line equipment, as shown in Diagram M2. Note: the same 3 metre clearance applies to cables fixed to buildings.

Segregated

Where trams are not operating within a street environment the Metrolink Exclusion Zone is the area between the operational boundaries. This includes the Electrical Hazard Zone as shown in Diagram M3.



You must not enter the Metrolink Exclusion Zone to undertake works, or carry or operate any equipment that has potential to enter the Exclusion Zone, without authorisation from Metrolink.

Diagram M2 –
Metrolink Exclusion Zone around
overhead line poles

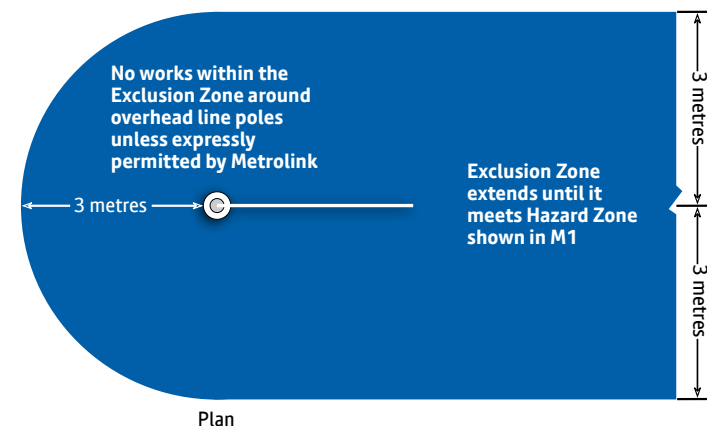
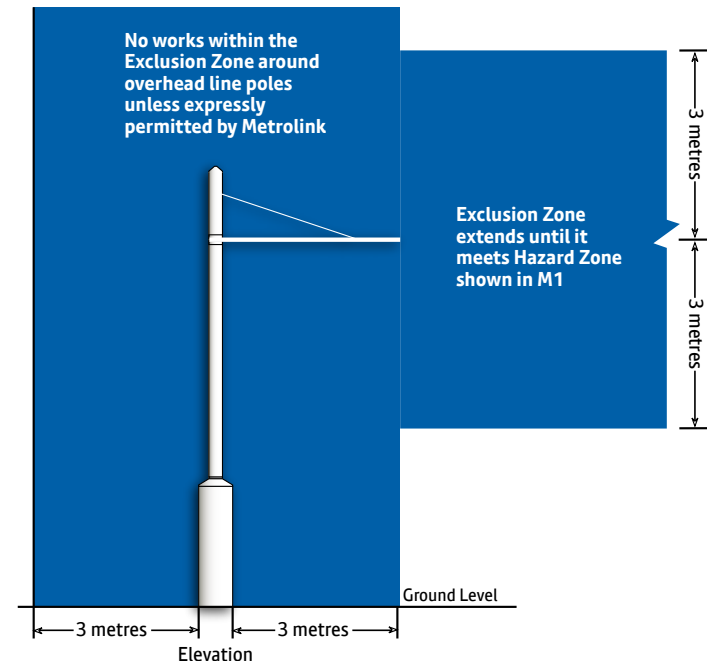
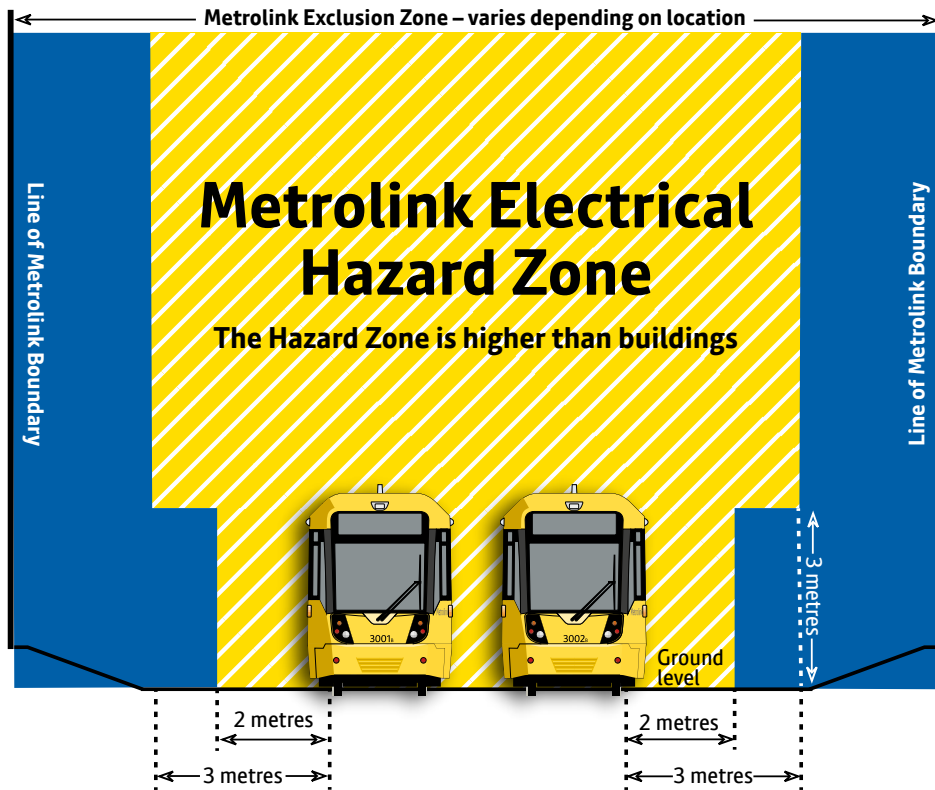


Diagram M3 – Metrolink Exclusion Zone

Area between Metrolink land boundaries and includes the Hazard Zone. Usually most applicable in segregated sections.



Common construction scenarios

Scaffolding near Metrolink

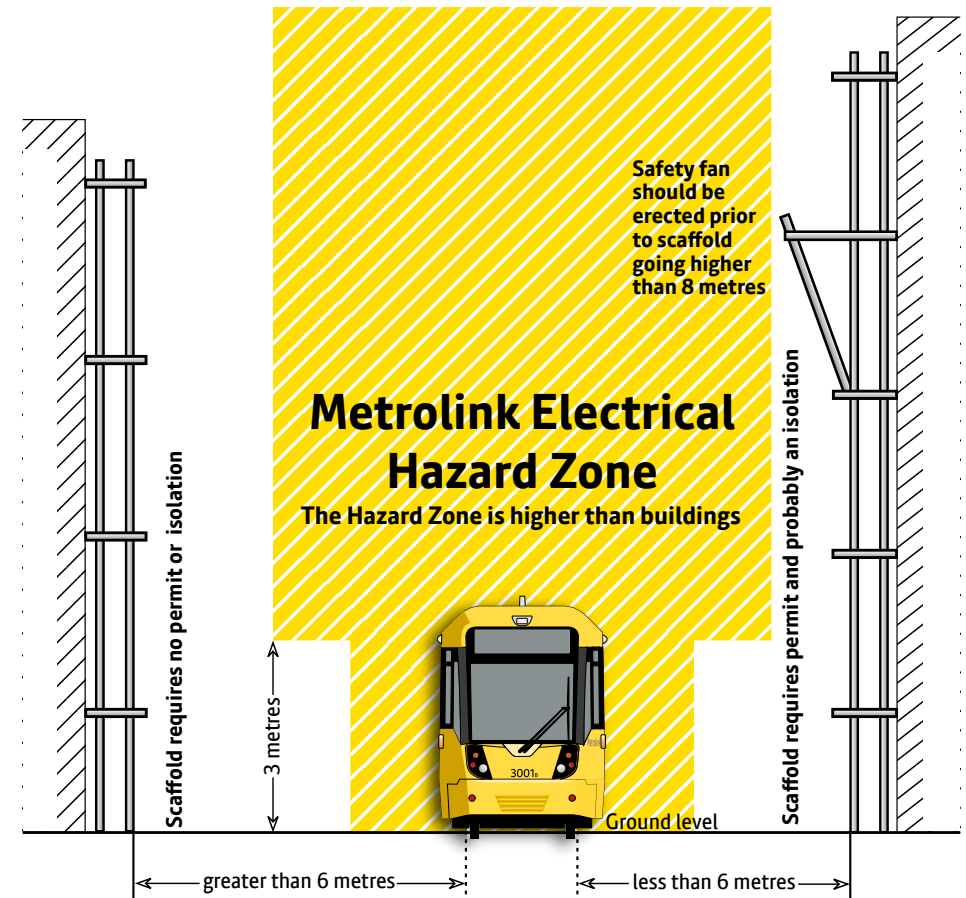
You can erect scaffolding without permission if it is at a distance of greater than 4 metres from the Metrolink Electrical Hazard Zone, i.e. 6 metres from nearest rail or 7 metres horizontally from the OLE.

However, if you are closer than this you will need to apply for a permit and will need to speak with Metrolink about undertaking the work safely.

Each situation is different but for guidance:

- It is likely that an isolation of the overhead power lines will be required. A typical night time isolation period is between 1.30am – 4.30am (actual working time period is approximately between 2am – 4am). You will be advised if there are planned isolations that you could utilise.
- Scaffolding in close proximity to Metrolink will need a fan included at a height of 8 metres prior to erecting scaffold above this height.
- Earthing of the scaffold and the installation of a Voltage Limiting Device may be required.
- A copy of the scaffold design and an independent design certificate will be required.
- If sheeting of the scaffold is proposed the details of the fixings will be required.

Diagram M4 –
Scaffolding adjacent to Metrolink



Excavating near Metrolink

You can excavate adjacent to Metrolink without prior authorisation providing:

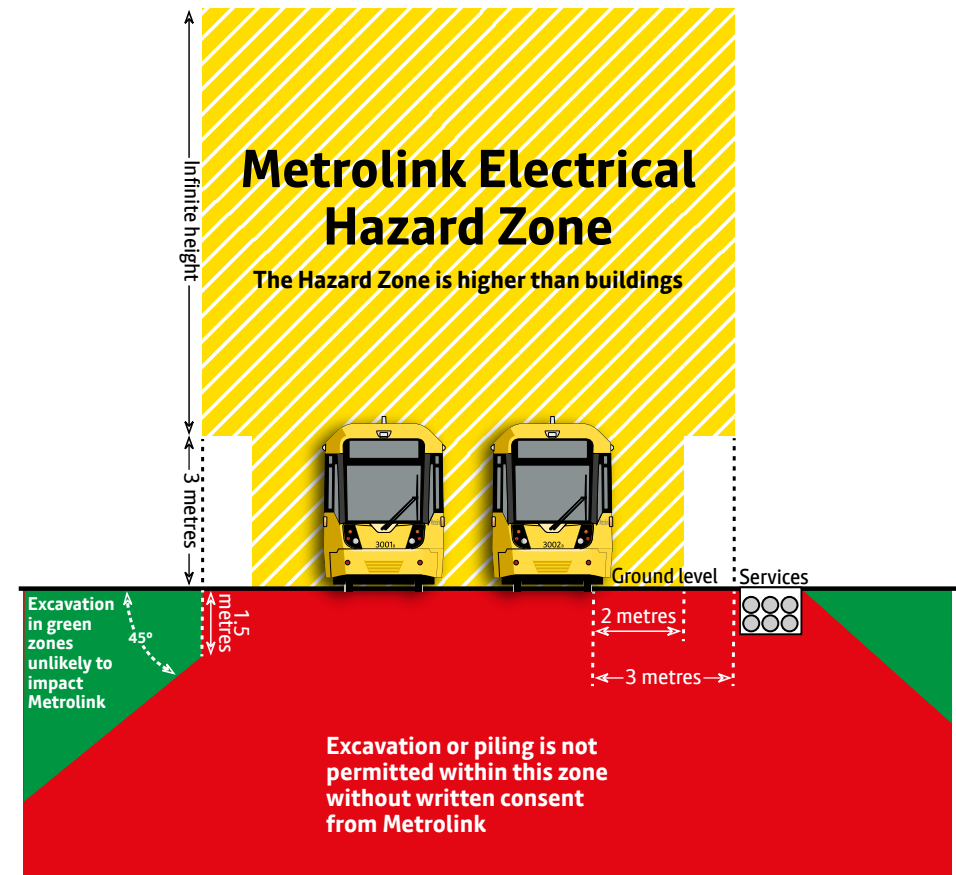
- No excavations or piling works enter the red zone, shown in Diagram M5.
- There is no risk of the equipment being used entering the Metrolink hazard zone, shown in Diagram M5.
- The topple/collapse radius of any excavator or piling rig does not extend into the Metrolink hazard zone; shown in Diagram M5.

You **must not** excavate within 3 metres of any overhead line equipment pole or adjacent to any Metrolink structures without prior approval.

The foundations of structures are not always obvious and often extend further than you think.

Under track crossings will be assessed on a case by case basis and will require authorisation.

Diagram M5 – Excavation and piling constraints



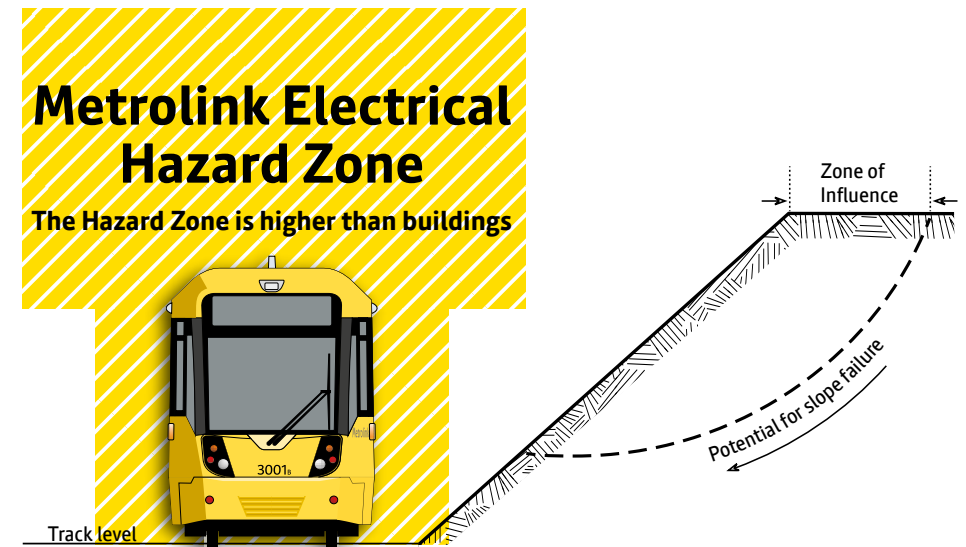
Working near Metrolink embankments or cuttings

You can only work/excavate adjacent to the top of a cutting slope, shown in Diagram **M6**, or at the bottom of an embankment, shown in Diagram **M7**, once you have demonstrated that your works will not adversely affect the stability of the slope.

Each situation is different but for guidance:

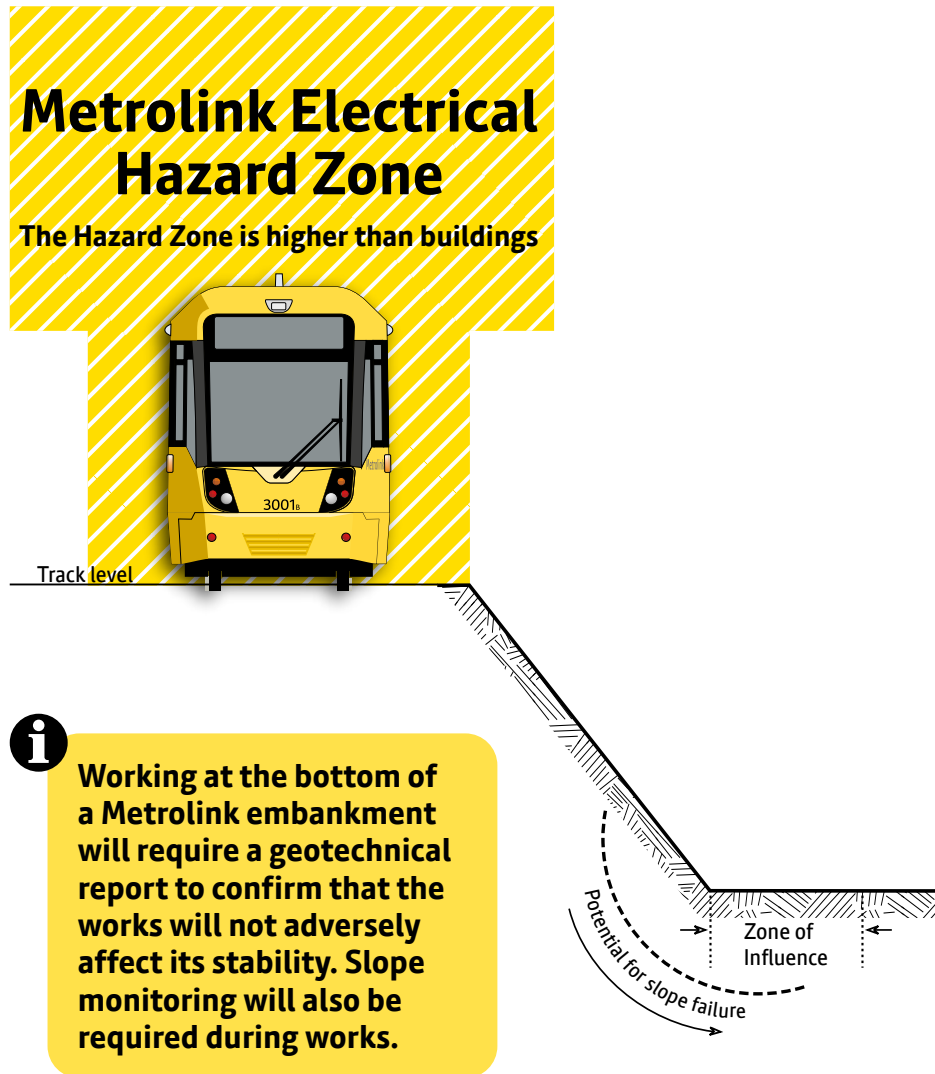
- A geotechnical assessment will need to be undertaken and we may request that slope monitoring and possibly track monitoring is carried out during the works.
- You must demonstrate that there will be no surface water discharge onto a Metrolink cutting slope as this could affect the stability of the slope.
- It is likely that temporary and/or permanent support systems will be required when working at the base of a Metrolink embankment. A design for this will need to be produced.

Diagram M6 –
Working at the top of a Metrolink cutting slope



Working at the top of a cutting slope will require a geotechnical report to confirm that the works will not adversely affect its stability. Slope monitoring will also be required during works.

Diagram M7 – Working at the bottom of a Metrolink embankment



New developments next to Metrolink

Advice for developers

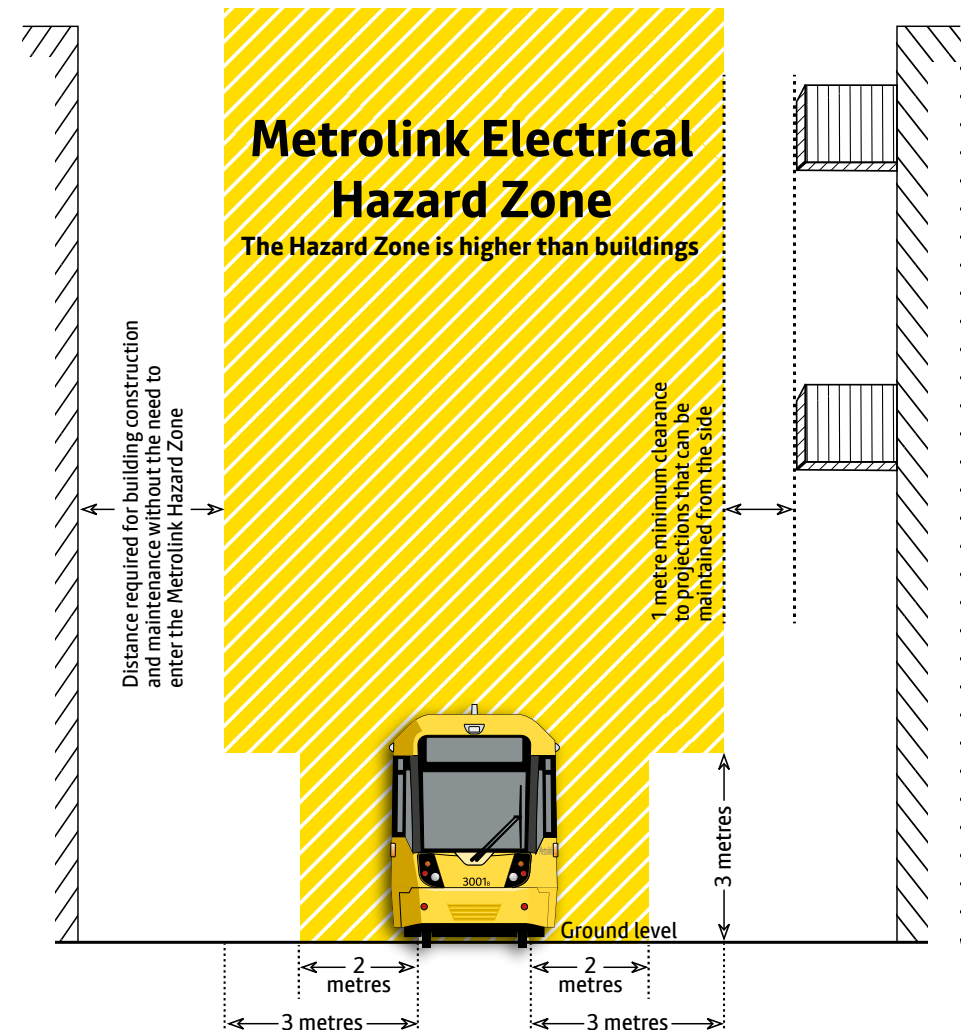
Your development must not enter the Hazard Zone. It should be designed so that it can be built and maintained without the need for any personnel or equipment to enter the Electrical Hazard Zone.

The only exception to a development extending into the Electrical Hazard Zone would be if it fully bridged Metrolink.

Any work in the Electrical Hazard Zone will require isolations and/or disruptive possessions. These incur charges and will need to be planned in. It should be noted that these could be cancelled at short notice if urgent maintenance work on the Metrolink network needs to be undertaken.

The design must also consider and accommodate the needs for the ongoing maintenance and replacement of Metrolink's own infrastructure.

Diagram M8 –
Proposed development adjacent
to Metrolink



Using a crane on a site next to Metrolink

- The use of a crane adjacent to Metrolink is permissible, but the crane must **not** over-sail the tramway. The only exception is when in free-slew during hours of non-operation.
- A plan showing the slew restriction will be required to demonstrate that it will **not** oversail Metrolink infrastructure or the hazard zone.
- If the crane is working within its collapse radius of Metrolink then the crane must only be utilised to 80% of its load capacity.

Minor works within the hazard or exclusion zone without a possession

It may be possible, with the permission of KAM, to undertake minor works in the Electrical Hazard Zone or Exclusion Zones.

Any such applications will need to be reviewed on a case-by-case basis but will likely require the use of a Person In Charge and a Lookout that would be charged out on an hourly basis.

Erecting hoarding in a street where Metrolink operates

Hoarding can be erected within the footway where Metrolink runs in the adjacent carriageway providing the hoarding arrangements:

- If less than 6 metres from the nearest rail, the hoarding should be made of non-conductive material. Alternatively, if metallic hoardings are proposed they will require non-metallic panels to be inserted every 15 metres or they may need to be bonded to the track or earthed; earthing calculations will be required.
- Leave a minimum of 1.8 metre footway to ensure that pedestrians are not forced to walk into the tram swept path envelope. If this cannot be provided then Metrolink must be contacted to discuss options. (If the footway is extremely busy then a width greater than 1.8 metres might be required).
- Can be erected without any equipment entering the hazard zone. If this is not possible then you must contact Metrolink and agree methods of working.
- Do not provide a person with the potential to get closer to the OLE than they would have been at ground level.

Installing ducting below Metrolink

- Ducting below the track is possible, however, this would need to be reviewed on a case-by-case basis. The depth of crossing will vary depending on the location and the intended use of the crossing.
- We expect that all track crossings will cross at 90 degrees to the track and we will require proposed construction methods and materials to be submitted for consideration.
- You are advised to contact Metrolink as soon as possible to discuss the proposals.

Abseiling adjacent to Metrolink

- You can usually abseil adjacent to Metrolink providing you have sufficient distance to undertake the task without personnel or equipment encroaching into the hazard zone or pedestrians being diverted into the hazard zone.



If in doubt please ask.

Authorisation

What needs authorisation?

Authorisation from Metrolink will be needed for any of the following activities:

- Any work where part of the work site, tools, materials, machines, suspended loads or persons could enter the Metrolink Electrical Hazard Zone or Exclusion Zones shown in Diagrams **M1**, **M2** and **M3**.
- Erecting scaffolding within 6 metres of the nearest rail. Refer to Diagram **M4**.
- Any work, including scaffolding or hoarding, which could force pedestrians into the path of a tram.
- Using a crane adjacent to Metrolink.
- Erecting hoarding adjacent to Metrolink.
- Piling or excavating within the zone shaded in red in Diagram **M5**.
- To enter the Metrolink Exclusion Zone on segregated sections.
- Undertaking any excavations at the base of a Metrolink embankment or at the top of a Metrolink cutting slope, within 3 metres of any overhead line pole, or adjacent to any Metrolink structure. Refer to Diagrams **M3**, **M6** and **M7**.

You must never undertake any of the following without an electrical isolation being in place:

- Power wash anything adjacent to Metrolink such that water could come in to contact with the power cables.
- Enter the Electrical Hazard Zone with any materials or equipment.
- Erect scaffolding within 6 metres of the nearest rail.



These lists are only a guide, they are not exhaustive and will be work dependent. Please contact Metrolink using the details on page 28 if you have any queries.

Please remember safety is paramount.

If in doubt please ask.

How to get authorisation

In order to obtain authorisation to work near the tramway you must submit a Metrolink Work Request Form, saying where and when you want to work, and describing the work to be done.



Work Request Forms can be obtained on our website at:

tfgm.com/tram-safety

or by emailing us at:

eplanner@metrolink.co.uk



Once you have agreed a safe method of working with the Metrolink Operator and obtained your authorisation to work. You must do the work in the agreed way. Failure to do so will mean the work will be suspended.

Completed Work Request Forms for minor works must be returned **at least 3 weeks** before you intend to start work. Major works will require more notice and will be dependent on the nature of the works. Early liaison is therefore advised.

For major works, in addition to demonstrating a suitable level of insurance, it is likely that you will be required to enter into an Asset Protection Agreement.

If you have prepared a method statement, you should send it with your Work Request Form. Also include any information that you have submitted to the Highway Authority under the New Roads and Street Works Act.

We may need to telephone you or meet with you to find out more about the work. If no precautions are necessary, we will tell you in writing.

If you need to take precautions in order to work safely, we will tell you about them in writing. We will try to find ways in which your work can be done safely during normal working hours. However, some activities may need to take place at night when trams are not running and when power to the overhead lines can be isolated.

There is a fee for isolating the OLE, which must be paid in advance, prior to it being programmed in. If there is an opportunity for you to work during isolations that are already planned in we will advise you accordingly.

If you need to carry out work urgently to protect people or property, you must, for your own safety, still contact us at the address shown and obtain agreement to carry out the work before you start. We will come to the site if necessary but may charge you to cover the costs for this.



Unauthorised work can be dangerous and is against the law.

Accessing the Metrolink Electrical Hazard or Exclusion Zones

Overnight electrical isolation

- A minimum of six weeks notice is required for the application.
- You will usually be notified within a week of receipt of your application if the proposal is acceptable.
- If the associated Risk Assessments and Method Statements (RAMS) for your works are not too complex these can often be submitted around two weeks before the isolation. However, this is dependent on the nature of the works and staff availability so submitting early is recommended.
- A cost is payable to secure an isolation and this will be required in advance of the isolation being planned in.

It should be noted that the time for working can often be as little as two hours between 2am – 4am.

Disruptive possession and the power isolated

(i.e. tram operations being suspended)

- Disruptive possessions are only granted where absolutely necessary and where the works cannot feasibly or safely be carried out using overnight isolations.
- A minimum of 13 weeks notice is required for a disruptive possession to be considered.
- There are some periods when planned events require that there are no service disruptions, consequently, you will need to be flexible with when the works requiring a disruptive possession are undertaken.
- Disruptive possessions incur substantial costs for bus replacement services.
- There may be the opportunity to utilise existing possessions that have already been scheduled in by the operator for maintenance purposes and these will be offered where possible.



Please note: If Metrolink needs to undertake emergency repairs, it may be necessary to cancel planned isolations or possessions at short notice.

We will give no recompense for any such cancellations, but we will provide a replacement date as soon as it is possible.

Emergencies during work

If work obstructs the track unexpectedly, if anyone or anything comes into contact with the overhead wires, or if tramway equipment is damaged, please inform the Metrolink control room immediately.



Emergency contact

The control room can be contacted **at any time** by:

- Using the emergency help point at any tram stop.
- By telephoning **0161 203 5619** (emergencies only).
- Contacting a Metrolink representative.
- You can also contact the emergency services (if needed) using **999**.

You must tell the control room that there is an emergency. The controller will ask you for details of the emergency. Please answer the questions as quickly as possible.

Questions the control room will ask in an emergency:

- **Who** are you and where are you?
- **What** has happened?
- Is anyone or anything touching the overhead lines?
- Is the track obstructed?
- Which emergency services are needed (if any)?



Please ensure you follow any instructions given by the controller.

If an approaching tram must be stopped, signal to the driver by holding both arms above your head.

You should stand where the driver can see you, but not in the path of the tram.

For more information on safe working
procedures contact:

Engineering Planner

Metrolink House

Queens Road

Manchester

M8 0RY

0161 205 2000

eplanner@metrolink.co.uk

Or visit: **tfgm.com/tram-safety**



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