

The logo for Laing O'Rourke is centered in the upper half of the page. It consists of a dark grey rectangle containing the company name in white, bold, sans-serif capital letters. Above the text is a horizontal yellow line, and below the text is a horizontal red line.

LAING O'ROURKE

MANCHESTER CITY FOOTBALL CLUB
SITE IMPROVEMENT WORKS
ETIHAD STADIUM

CONSTRUCTION MANAGEMENT PLAN

DOC REF: MCFC-SI-LOR-REV1

Version Control:

Revision	Date	Drafted by	Reviewed By	Notes
Rev1	08/12/22	Nathan Doyle	Carl Grady + Misc	Agreed Document

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1. Introduction

We have produced the Construction Management Plan to support the planning submission for the proposed site improvement works, by outlining the fundamental principles of the site operations, including health, safety, and environmental considerations. The operations can be aligned to five overarching headings

- Mine grouting
- Trial piling (if deemed necessary following ground investigation results)
- Demolition/dismantling of several existing features
- Diversion of existing underground services
- Associated temporary works to provide safe access around the work area

2. Scope and phasing of works

The scope items are set out in two phases, which are discussed in more detail in their relevant sections but essentially sit either side of the 'concert window', which takes place between football seasons.

In planning the works, we have accounted for the ongoing Co-op Live construction project when considering movements around the work area for both construction personnel, vehicles and the general public. The improvement works will be completed with a limited number of construction personnel and associated traffic will be negligible.

Phase 1 (pre-concert season)

- Site establishment and logistics
- Mine grouting to areas 4,5,6,7,8 and 9 (see figure 8 for location)

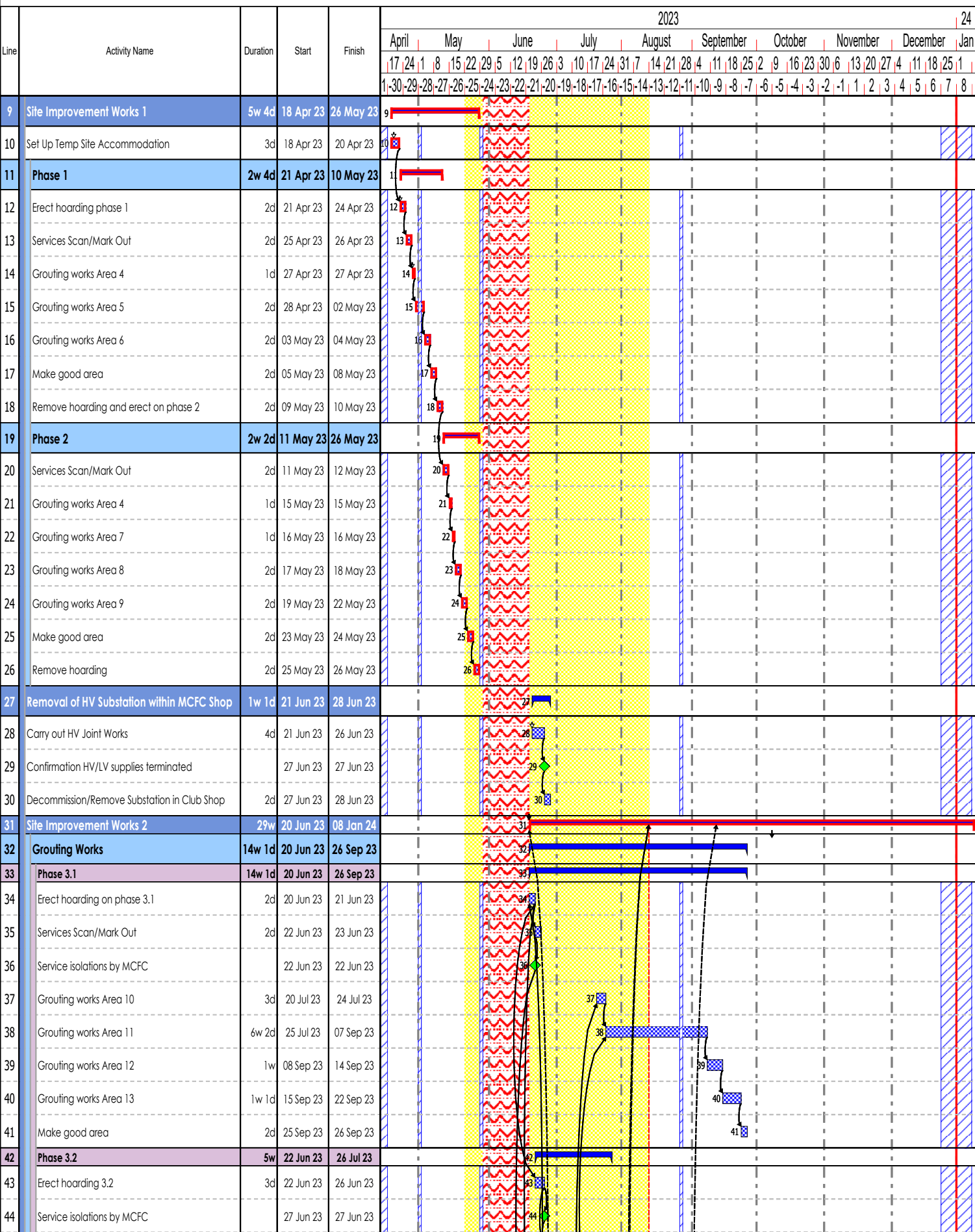
Phase 2 (post-concert season)

- Mine grouting areas 10, 11, 12, 13, 1, 2 and 3 (see figure 9 for location)
- Demolition of existing club shop and dismantling of existing structures (including the removal of sundry items)
- Service diversions
- Construction of (temporary works) circulation routes and hoarding (including access platform adjacent The National Squash Centre, Metrolink queueing alterations, temporary turnstile and concourse alterations)
- Potential trial piling (subject to ground investigation (GI) results)
- Installation of welfare accommodation

3. Indicative programme

The programme to complete the proposed works is shown below, logically linked to demonstrate activity dependencies. It is anticipated works will run between April 2023 and January 2024 with minimal works being completed within the concert season, or during any events held at the Etihad Stadium. An indicative sequence of activities is shown below:

MCFC Site Improvement Works



Milestone Appearances  Diamond	
PROJECT TITLE	MCFC Site Improvement Works
PROGRAMME TITLE	Site Improvement Works Programme
PROGRAMME NUM	REVISION NUM & DATE 05/12/2022
LAING O'ROURKE CONSTRUCTION LIMITED City Gate 2, Cross Street, Sale, M33 7JR Registered office: Bridge Place, Anchor Boulevard, Admirals Park, Crossways, Dartford, Kent, DA2 6SN Registration number: 04309402. Registered in England	
Planned by Andy Ward Page 2 of 2	

4. Site establishment and logistics

4.1 Access/egress to Site

The stadium is served by several arterial routes, which can easily facilitate the movement of construction traffic. These routes are accessed via a convenient, but busy, motorway network around the periphery of the city. We will keep traffic away from crossing the city, looking to utilise the circular M60 motorway wherever possible.

We will define the preferred routes in the site-specific construction phase traffic management plan, which we will also share and agree with the supply-chain members. We envisage that this will be produced in March 2023, well ahead of works commencing on site.

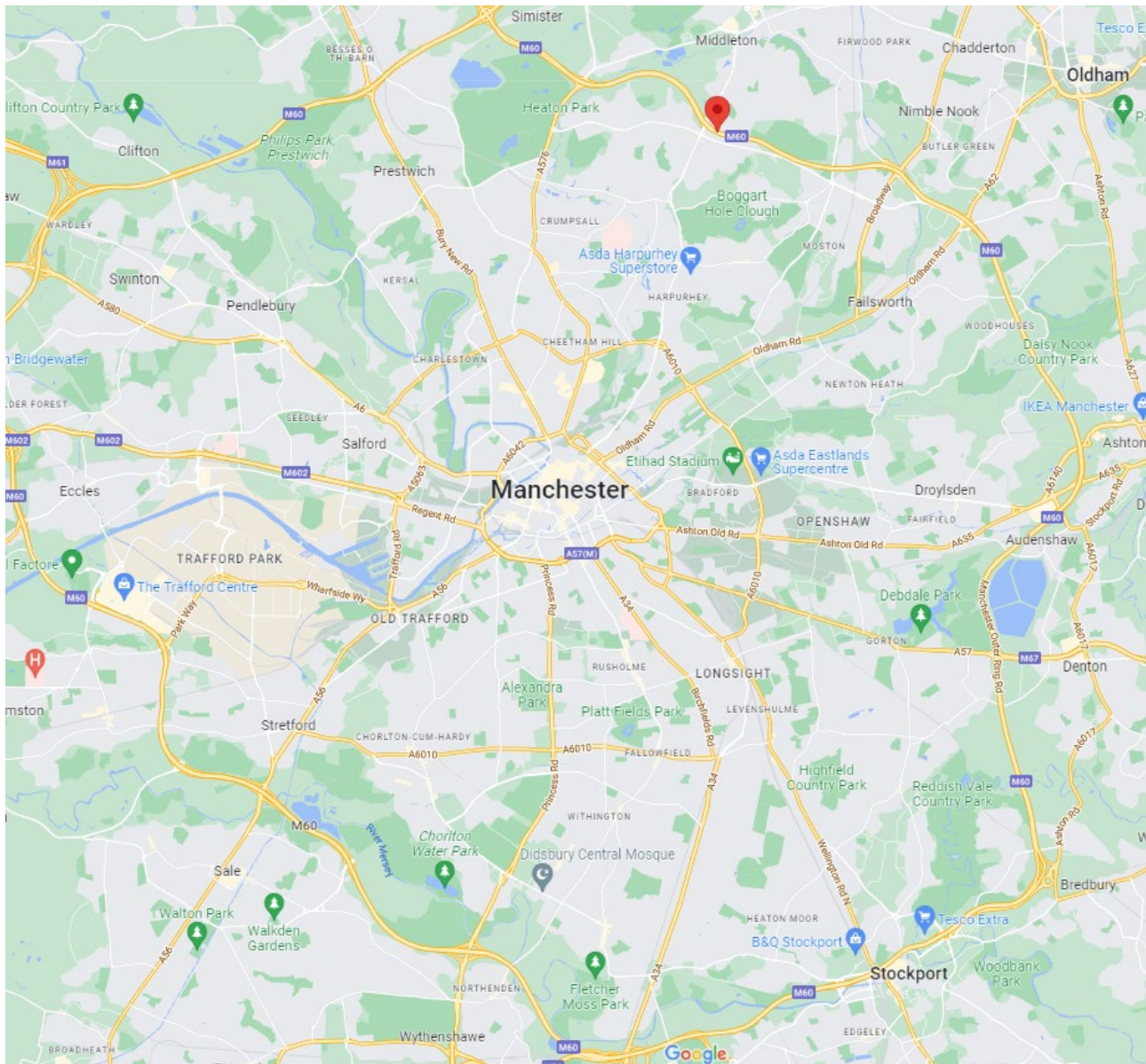


Figure 1 – M60 In relation to Etihad Stadium

The main point of entry for site operations will be off Rowsley Street, with contractor staff vehicles accessing from Alan Turing Way. This entrance may also be used on occasion for plant and materials deliveries by pre-agreement and under controlled escort when on site.



Figure 2 – Primary entrance off Rowsley St



Figure 3 - Entrance/exit from Alan Turing Way

4.2 Logistics, welfare and hoardings plan

As with the traffic management plan, prior to works commencing on site, we will finalise an agreed hoarding, welfare, and logistics strategy. This will set out all agreements and expectations for all subcontractors and subcontract personnel. We expect this to be in place by March 2023, well in advance of works commencing.

4.3 Site logistics

As described above, the primary construction vehicle access is anticipated to be off Rowsley Street. Deliveries of plant or materials will off load at the designated and secure storage area or progress directly to the workface as directed by the Gate security.

We will appoint a traffic marshal to manage the interface between vehicles, cyclists, and pedestrians within the curtilage of the works, although due to the relatively small scale of the improvement works, the frequency of vehicle movements is forecast to be low.

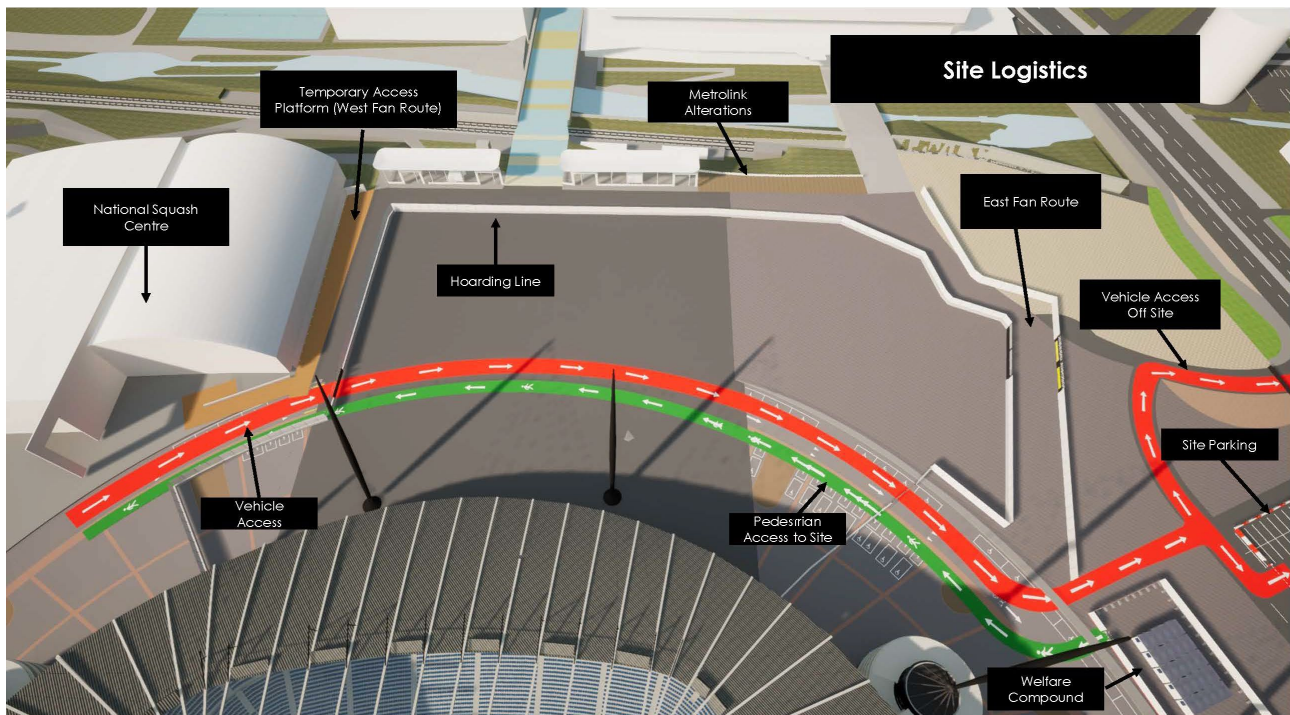


Figure 4 – Site logistics

4.4 Initial temporary accommodation

Given the small nature of the improvement works and subsequent limited workforce required to complete it, a combined single-story welfare facility and site office will be established.

The accommodation will include a canteen, drying room, changing rooms, male and female toilets and showers, and appropriately sized office space for both Laing O'Rourke and subcontract personnel.

The cabins will be supported on above ground concrete strip footings/jack-pads. We are advised by MCFC that an existing power source is available which we will utilise for the accommodation.

The existing hard standing will form the basis of the safe walking routes, with appropriate signage and controlled access/egress to safely segregate the operatives from vehicles or members of the public as they enter/exit the accommodation facility.

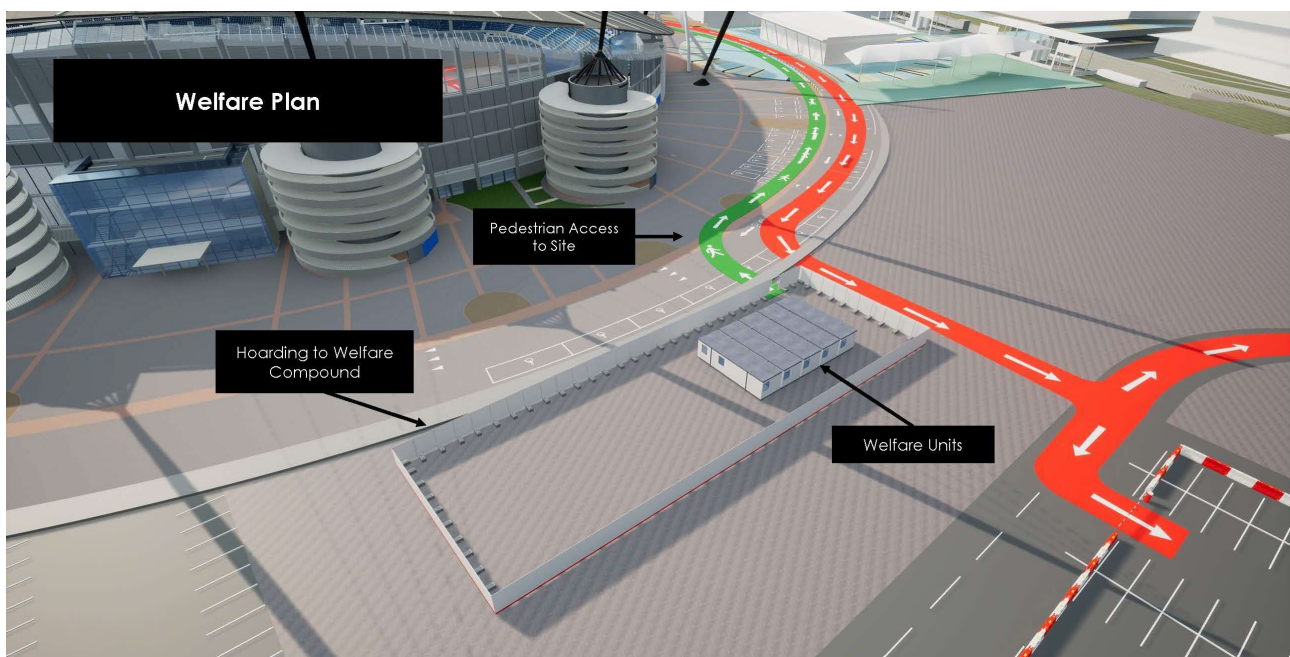


Figure 5 – Site welfare location

4.5 Operative inductions

Following final agreement and acceptance of the relevant risk assessment and method statement, which will be targeted approximately two to four weeks in advance of works commencing on the site, all operatives will undergo a site induction. This induction will clearly set out the expectations of both MCFC and Laing O'Rourke and define all associated movements and interfaces.

4.6 Operative walking routes

To access the relevant workface, operatives will leave the welfare accommodation and make their way directly to the secured work location. All operatives accessing the site will be controlled via an agreed Laing O'Rourke pass system having been fully inducted.

4.7 Public pedestrian routes

Public rights of way will be maintained through the site, other than to localised workfaces. These workfaces will always be secured with appropriate open or closed fencing, as deemed acceptable via the agreed risk assessment.



Figure 6 – Open heras fence



Figure 7 – Closed aluminium heras fence

As time progresses, we will use the vehicle collision barrier (VCB) and timber hoarding (further described under the construction methodology section) to define public rights of way.

4.8 Contractor parking

Parking will be accommodated within the carpark defined in the logistics layout (Figure 4). As discussed above, the works are of a limited nature and the numbers of personnel required to complete these works will also be limited and therefore no impact is expected on the surrounding road network.

4.9 Site working hours

The expected site working hours for the works identified are aligned with common construction working hours commencing at 07:30am with the facility to operate until 18:00. Operatives will arrive/depart c.30 minutes either side of these times.

Any weekend working will take place between the hours of 8:00 and 14:00

4.10 Fire and emergency

Following the appropriate risk assessment, we will agree a fire and emergency plan with MCFC by March 2023, prior to commencement of any works on site. This will define a clear intent to always maintain access for emergency responders.

The document will be tailored to manage both the impact of works on the stadia itself, as well as defining a specific plan relating to the welfare and office accommodation. With such items as muster points positioned outside the stadium footprint, close to the accommodation compound.

5. Construction methodology

5.1 Management tools

Our indicative construction methodology is set out below. This intends to keep, to an absolute minimum, the impact of the works on nearby structures, vehicular and pedestrians access routes, or local businesses.

Underpinning the defined methodology, as identified by the risk assessment and subsequent method statements, will be the following documentation further developed and agreed prior to works commencing on site:

- Construction phase H&S plan
- Project environmental plan (may form part of above)
- Site specific waste management plan (also related to any defined remediation strategy)

5.2 Site establishment

The site compound and facilities will be positioned as indicated in Figure 4 above.

Access from the welfare location will be managed via a controlled gate located in the hoarding securing the welfare compound.

For the improvement works, most segregation will be achieved by utilising a closed 'Heras' panelled system, shown in Figure 7.

As work progresses, we will erect the site hoarding consisting of a combined VCB with solid hoarding/fencing. We have referred to this in section 5.9.

Localised power for drilling works and appropriate lighting will be from a local generator.

5.3 Existing services identification

Prior to any works commencing, services within the grouting grid will be located by the GPR (ground penetrating radar) survey completed as part of the ground investigation works. The existing services will then be further checked using a CAT and Genie or where appropriate through excavation, either by hand or by vacuum-excitation (Vac-Ex). We will mark all services on the surface for identification purposes, ensuring there is no clash with the grouting grid.

5.4 Mine grouting works

While completing disruptive grounds works within City Square, including service diversions and demolition/dismantling works, we propose also undertaking mine grouting works. This should enable any impact on ground conditions from historical mining activity to be addressed.

In preparation for the grouting works a coal mining risk assessment will be completed and subsequent coal authority application made. Subject to the findings of the ground investigation works an environmental permit application may also be needed to obtain the relevant permissions to complete the works.

Prior to any mine grouting works commencing, we will establish a safe hoarding line. Due to the transient nature of the works, we expect that a closed Heras fencing solution is to be utilised to avoid any 'splashing' to members of the public.

The mine grouting works will follow a zonal approach, on either a 6m or 3m grid to a total depth expected to be in the region of 30m. We will establish a grouting plant, consisting of a material silo, water silo, mixing units and pumping units. We will schedule delivery of the plant and equipment to reduce the traffic impact on the area. We will use a small handling crane to remove the plant from the transport vehicle.

We will conduct the grouting works using a mini-piling rig which will drill bore holes to infill the ground with the Grout mixture. Grout will be pumped from a holding tank through to multiple grout hoses which will then fill the predrilled bore hole.

During grouting, there must be careful deliberation to ensure that the grout lines are monitored correctly and well managed throughout – the appointment of a manager and or supervisor for the works will ensure this is achieved.

The grout mix will be sampled in the form of several test cubes to validate the strength of the grout. These results will form part of the quality documentation and records.

Once grouting works are complete to the relevant zonal area, the surface will then be made good to provide an appropriate walking surface. Localised hoarding will be removed, and the zone handed back to MCFC.

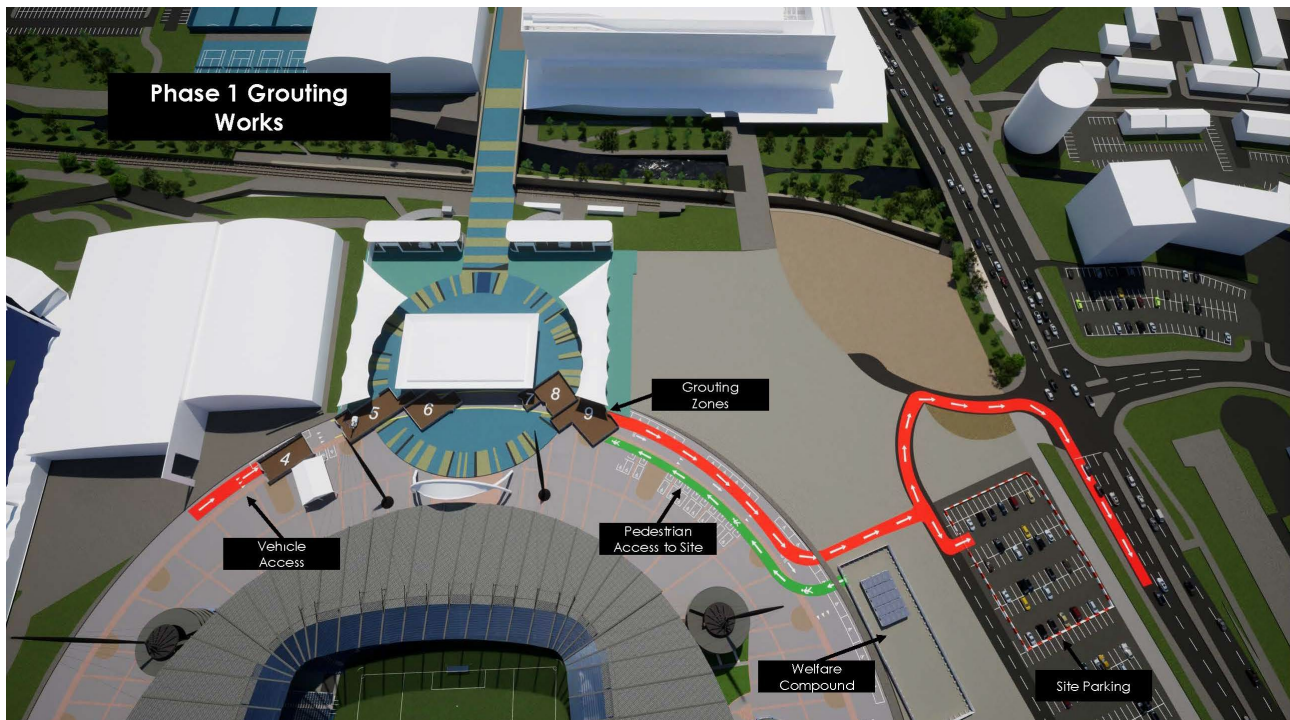


Figure 8 – Grouting Phase 1

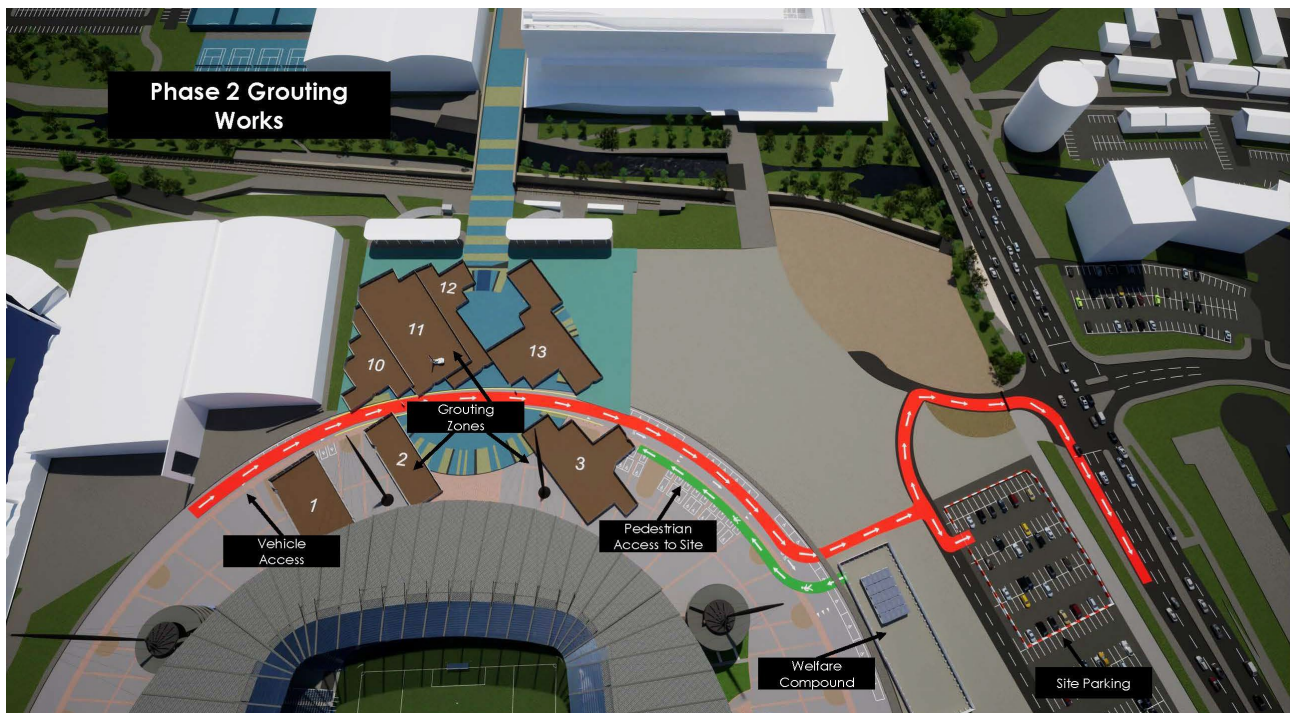


Figure 9 – Grouting Phase 2

5.5 Removal of existing structures

Prior to the works commencing, the demolition subcontractor will establish localised hoardings around the work areas, set at an agreed distance from the work front. This will be an appropriate closed fence solution, in order that suitable protection is afforded to the public, who may be moving around the wider campus.

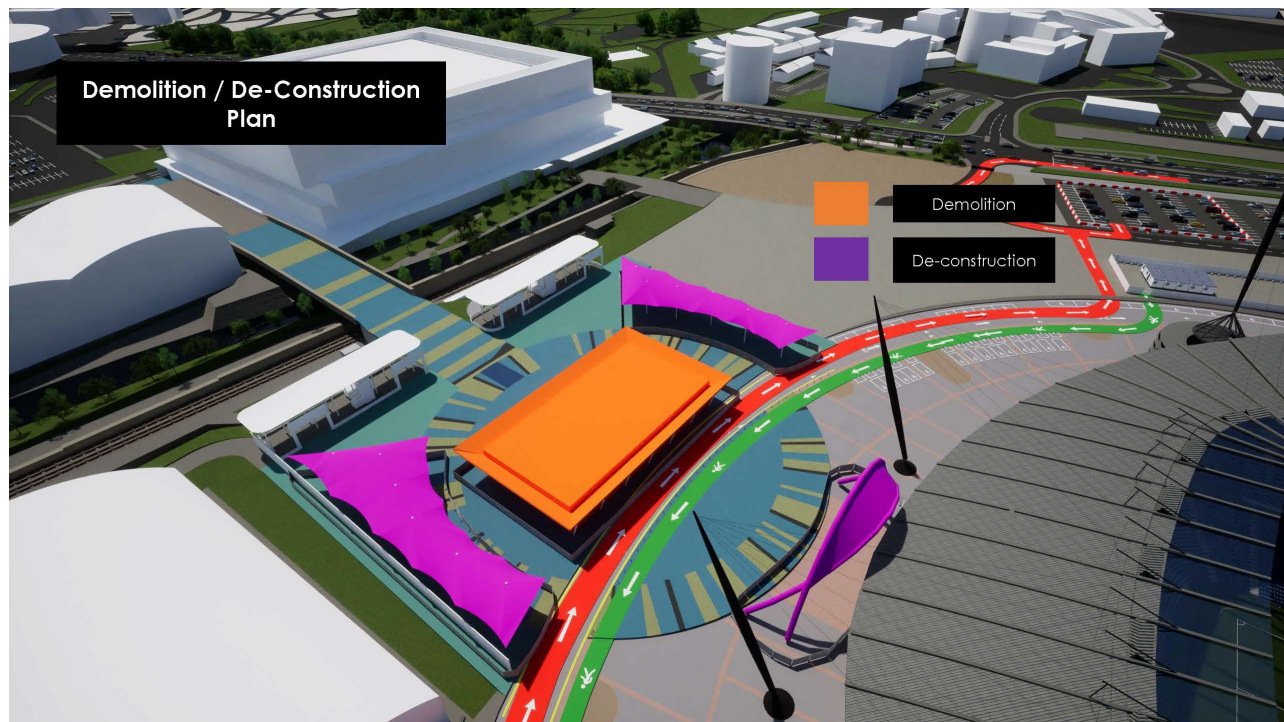


Figure 10 – Dismantle/demolition areas

The works will need to include the removal of the seating areas and appropriate structures housed underneath the current canopy structures to the east and west of the MCFC club shop. The club has advised of their desire to re-use these structures wherever possible, and as such it is anticipated that the structures will be dismantled allowing them to be stored and re-used. As this is a non-destructive form of removal, we will dismantle them using craneage and man access equipment, prior to being loaded and taken to a defined storage location.

We do not anticipate that the removal of these will produce any dust during dismantling, and, as such, damping down is not required. We also do not anticipate that excessive noise levels will be generated, but we will monitor both closely and react if the need arises.

All structures have been built relatively recently and as such asbestos or asbestos related products will not be present following their use being made prohibitive prior to this development taking place.

Images below highlight structures which will be removed.



Figure 11 – Canopy structure 1



Figure 12 – Canopy 1 and associated structures



Figure 13 – Canopy structure 2



Figure 14 – Canopy structure in City Square

5.6 Demolition of existing club shop

The existing club shop structure currently houses an electrical transformer that feeds the adjacent structures which all form part of the demolition/removal scope. This transformer also forms part of the network that feeds the National Squash Centre, therefore, requiring the feed to be redirected prior to disconnecting the transformer. This will ensure power is maintained to the National Squash Centre.

Once service isolation has been demonstrated and proven 'dead', with the relevant permits issued, the soft strip of the facility will be carried out. This will include all fixtures, fittings and similar.

The building is low rise and, upon satisfactory completion of the soft strip, we will demolish it using a wheeled excavator with mechanical jaw attachment. We do not anticipate that this will produce dust or excessive noise but we will monitor it closely. We will segregate all materials during the demolition works and recycle them wherever possible.

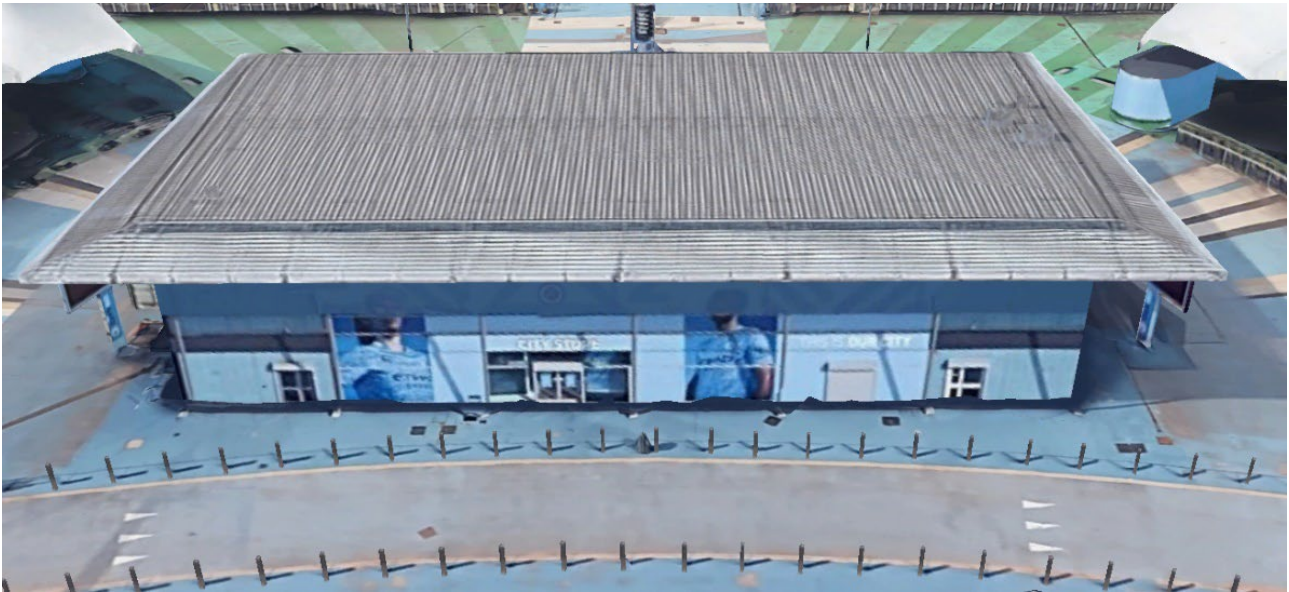


Figure 15 – Club shop

5.7 Removal of existing foundations

Should it be required, we will remove foundation and backfill voids to ensure unobstructed access. The surface finish will then be applied, and the surface made good to provide safe walking routes. We anticipate that some of the foundations may be of a considerable size associated with the stage, and as such these will likely need breaking out utilising an excavator with 'pecker' attachment. This is a relatively noisy operation and will be carried out at a time agreed with the club to minimise disruption, albeit within normal working hours, to avoid disruption to members of the public.

5.8 De-commission of lighting and bollard removal

As part of the works, we will remove existing features such as walkway lighting and existing bollards. In the case of the lighting, electrical distribution will be isolated and proved 'dead' prior to any removal commencing. Following this disconnection, the ground around the lighting columns will be removed, allowing access to the foundation and subsequent removal utilising a controlled lifting technique.

Bollard removal will similarly require the ground around the bollard to be broken out providing access to the foundation. Ahead of any works commencing, services in the vicinity of the bollards will be identified and works will be undertaken with care to ensure services are not disturbed. As with the column removal foundation may need to be broken out, prior to controlled lifting operations to remove.

As with all items being removed, demolished or dismantled, the foundations will also be removed, the ground will be backfilled with suitably compacted material and surface applied, prior to opening up to members of the public.

5.9 Establishment of safe pedestrian and emergency vehicle routes

Through detailed discussions with MCFC and their advisor GHD, we have established critical dimensions for the provision of safe walking routes around the perimeter of the improvement works zone. We have established these dimensions following detailed 'people movement assessments' carried out by GHD. Based on these dimensions the walkway layout below has been developed in readiness for the detailed location to be agreed with all Campus stakeholders.

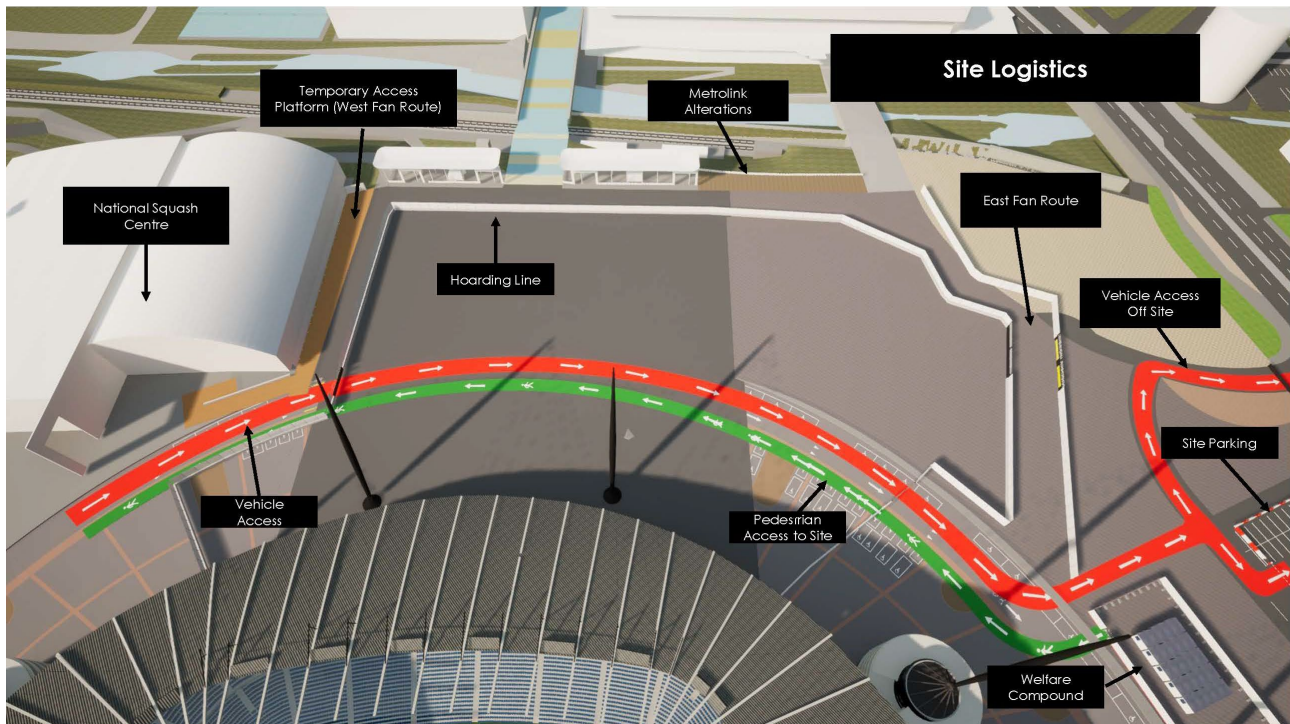


Figure 16 – Establishment of pedestrian and emergency vehicle routes

The hoarding make up must take cognisance of the environment for which it is to be used and will consist of a robust VCB at its base, with solid timber hoarding above. This will be placed utilising an all-terrain forklift.

Replacement lighting will be designed to provide similar lux levels as the existing, with work also being undertaken with the estate and club to ensure that relocated CCTV and public address systems provide similar levels of coverage.



Figure 17 – VCB Hoarding

5.10 Commencement of Metrolink queuing structure alterations

Following the engagement to establish appropriate walkway widths around the improvement footprint, we recognise that in the case of the northern boundary, this creates a direct interface with the existing Metrolink queuing area. In discussion with the club and Metrolink, we have agreed that amendments can be made to the existing queuing location, whilst providing additional queuing area where necessary, to re-provide a section that would need to be removed to facilitate the walkway dimensions identified.

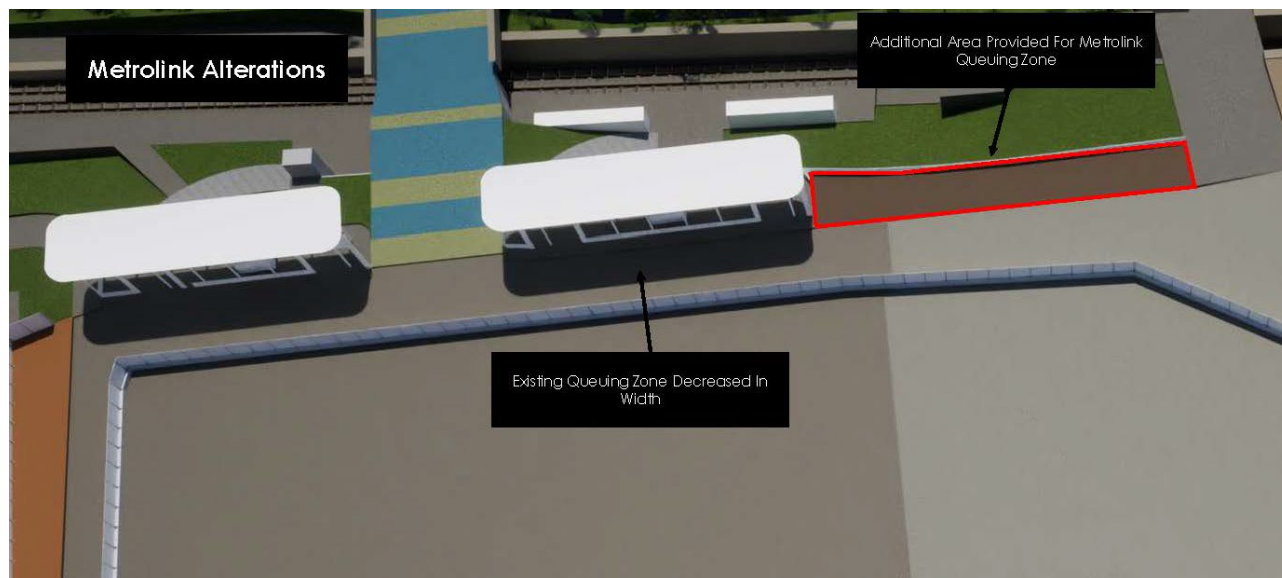


Figure 18 – Metrolink queuing proposal

Once the additional queue area has been created, sections of the existing queuing system will need to be removed / adjusted as agreed by all parties. These works will be undertaken between events. This will allow removal of one ticket booth and alterations to the queueing rails. The re-provision will include the formation of a hard standing adjacent to the existing surface. This additional hard standing will be completed prior to the removal of any queuing area.

Prior to any work being undertaken, we will undertake checks for any unmarked/unknown services.

5.11 Access platform and amendment of access ramp to the National Squash Centre



Figure 19 – Access platform

To provide sufficient width for safe pedestrian movement based on the advice of GHD, we must erect a walkway adjacent the existing west side of City Square. As well as providing pedestrian access, this will also be designed and installed to take Blue light traffic in the event of an emergency.

A suitably qualified temporary works engineer will design the platform, with the appropriate design checks undertaken. It will obviously need to be robust in its construction but will be free from surfaces that may snag clothes when heavily trafficked during access/egress to the stadium. It will also have an anti-slip surface, be appropriately illuminated, covered by CCTV, and public address system to similar standards to the existing.

In installing this platform, the existing access ramp will require amendment to ensure the appropriate fall remains. This is likely to include an additional half landing and return at the low end of the ramp

5.12 Temporary concourse alterations

To facilitate the VCB hoarding line and maintain safe effective access/egress to the North Stand concourse, several temporary alterations are currently being agreed with both MCFC and their advisor GHD. These include the relocation and addition of temporary turnstiles, and the addition of flood gate access locations to the secure perimeter.

In turn, these flood gate locations require the removal and re-provision of several facilities including first aid room, accessible WC, and cleaners store, as detailed on the plan below.

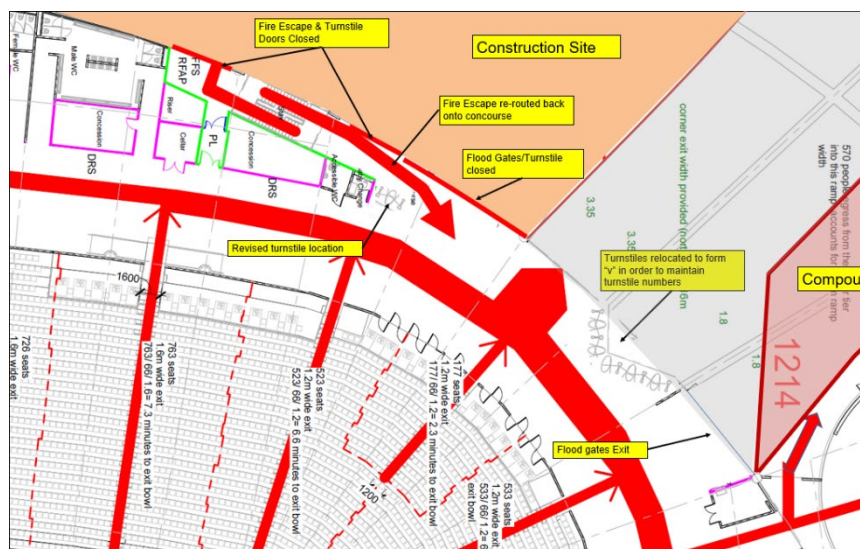


Figure 20 – Proposed concourse alterations

5.13 Service diversions (including drainage)

A recent GPRS and ground investigation trenches have verified that several services and drainage runs will need to be diverted. These include:

- Foul and surface water drainage
- Gas
- Electric
- Water
- Communications

Following agreement with the provider (where appropriate, ie, not a private service), the services will be located, utilising existing GPRS information, Cat and Genie, and localised excavation by either hand or Vac-Ex. This will include earth works support if deemed necessary following a temporary works review.

We will excavate new routes, and instal/backfill new services, allowing the completion of the relevant connection of each diverted service. The works will also include installation of appropriate wearing surface to provide safe access once the routes are reopened.

Arisings from the excavations will be treated in line with the agreed environmental management plan and remediation strategy.

6. Health and safety (H&S)

The project will be managed in accordance with Laing O'Rourke's Safety Management System (SMS), which complies with OHSAS:18001 and BSEN:14001.

The principal site document will be the construction phase health, safety and environmental plan, developed for April 2023, well in advance of the commencements of works. This will include:

- Details of all significant parties involved in the scheme
- Existing records of the building
- Management structure and appointments
- Communication strategy
- Arrangements for monitoring H&S performance
- Selection and control of subcontractors
- First aid arrangements
- Accident and incident reporting arrangements
- Arrangement for controlling significant site risks
- The H&S file

6.1 Management and planning

Other separate documents to this plan will include:

- Traffic management plan
- Fire and emergency plan
- Lifting plan
- Site waste management plan

H & S is an integral part of the planning process for each project. Implementation of Laing O'Rourke's comprehensive H&S system and procedures will ensure every facet of the construction process is planned, managed, and monitored. This will also ensure compliance with statutory obligations.

As part of our policy, all persons on the project will be encouraged to express their views and concerns about H&S. This will be achieved by various means, including:

- Project H&S committees
- Safety representatives from each contractor
- Toolbox talks including a feedback process
- Discussion and briefing on method statements and risk assessments
- General engagement with the workforce

An 'open door' policy will be employed, whereby all staff can discuss H&S issues with any member of the project team. Site noticeboards, toolbox talks, and posters are used to convey environmental and H&S information to all site team members.

Subcontractors are required to demonstrate how they would achieve the provisions of the Construction Phase H&S Plan, how targets will be met and how potential effects will be minimised.

Contractors will be required to comply with all provisions of relevant legislation, including:

- Control of Pollution Act, 1974, Part IV
- Health and Safety at Work Act, 1974
- The Clean Air Act, 1993
- Environmental Protection Act, 1990

All subcontractor's method statements and visual task sheets will be required to address the specific issues that may have a disruptive effect on the local community as identified in the Construction Phase H&S Plan, including:

- Noise and vibration
- Local air quality and dust emissions
- Parking
- Deliveries
- Waste management
- Operatives' behaviour

6.2 Noise management strategy

A construction noise assessment has been undertaken in accordance with BS 5228:2009 which demonstrates that noise from daytime construction activity on the site is not considered to be significant. Despite the favourable assessment, we will adopt several additional mitigation measures to keep construction site noise to a minimum. These are detailed below and are derived from BS 5228-1:2009.

6.3 Dust management

The works are not envisaged to create large volumes of dust, with minimal works being carried out within the ground. However, we will monitor this closely and, if required, we will take suitable measures to counteract, such as by using damping down techniques.

6.4 Record keeping and community relations

The following records will be kept on site and made available to interested parties for inspection upon request:

- Noise monitoring data
- Relationship building with people living and working in the vicinity of the site
- Monitoring equipment calibration certificates
- Details of complaints received, and actions undertaken to resolve these

6.5 Water management

It is imperative that good water management practices are observed on site. There are three main areas of concern: dewatering, concrete washout, and pollution prevention measures.

6.4.1 Dewatering

There may be a requirement to dewater deep excavations on site (c.3m). This will be determined following conclusion of the ground investigation works. Laing O'Rourke will liaise with the EA to obtain all required abstraction consents and ensure that the discharge element is also permitted. the application would include:

- Dewatering areas
- Volumes of water to be abstracted
- Monitoring and reporting regime
- Discharge location(s)

6.4.2 Concrete washout

The water used to clean concrete wagon discharge chutes carries two issues: high pH and high suspended solids content. Therefore, concrete washout waters will be treated using Siltbuster's roadside concrete washout (RCW) unit (or similar) with automatic dosing CO₂ gas to bring the pH to within neutral limits. The unit is mobile and can be deployed to concrete pour areas, providing ease of use and access. Any recovered solids will be sent off for recycling/reuse off site.

Site water quality monitoring will be established in line with set conditions (eg, by the discharge consent).



Figure 21 – SiltBuster

6.4.3 Record keeping

Water usage will be monitored on site via local metering wherever possible. This is to ensure accurate usage data is available to measure progress against set project benchmarks and minimise excessive consumption.

Laing O'Rourke's internal IMPACT system will be used to record data and provide monthly reporting to the client's team.

6.4.4 Pollution prevention

General principles of pollution prevention will be implemented on site. This will include initiatives such as:

- Live draining will have silt traps or 'witches' hats' installed to prevent silt deposits
- Flood prevention measures such as storing fuel and chemicals away from drainage sandbags available on site if needed to minimise water ingress
- Drainage plans to be well understood and communicated to all site staff