

NOMA
2 & 3 Angel Square
Outline Construction Management Plan

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Appendix A – **Logistic Plan for Scenario 1**

Appendix B – **Logistic Plan for Construction of 3 Angel Square after 2**

1.0 Introduction

This Outline Construction Management Plan has been prepared to support an application for Full Planning Permission for 2 and 3 Angel Square at NOMA (also known as Plot M & N of the NOMA Framework area). A full Construction Environmental Management Plan will be submitted to Manchester City Council as part of the condition discharge process.

The description of the works comprises of the construction of 2 new mixed-use office-led developments, with lower and upper ground floor commercial retail uses.

The purpose of this document is to outline the principles of the construction methodology and site logistics for the proposed construction of the offices, and is subject to refinement as the project evolves and the Main Contractor for the construction works is appointed on the Development.

The Construction Management Plan describes the proposed outline programme and key activities involved with the construction & installation works.

The construction of Plots 2 and 3 will be procured as a Design & Build Contracts.

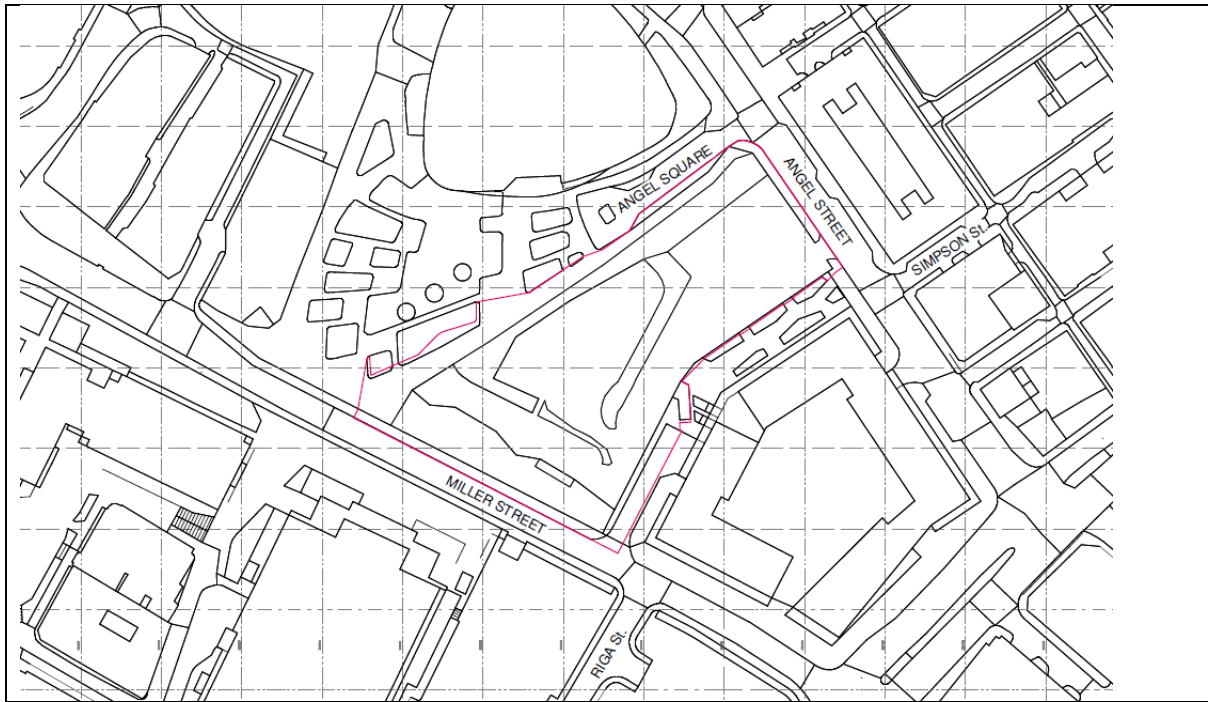
2.0 Site Location

The development is bound by Angel Street to the North and Miller Street to the South with Angel Square on its western boundary and Angel Gardens to the east.

The Site comprises areas of hardstanding and has been used as surface car parking for a number of years alongside informal and formal areas of shrubbery and trees. The use as a car park detracts significantly from the quality of the environment in this area – a strategic regeneration priority and point of entry into Manchester City Centre.

The NOMA Marketing Suite as approved in May 2021 under temporary Planning Permission Ref. 129631/FO/2021 is currently under construction within and to the south of the Site adjacent to Miller Street. It is proposed this would be relocated to another Site within NOMA.

The Site Location Plan is provided overleaf.



3.0 Outline Programme

At this stage it is not yet known how the delivery of the Proposed Development might be phased; there are a number of potential scenarios that could arise dependent on the requirements of future occupiers. These scenarios are outlined below:

- Scenario 1: 2 Angel Square delivered first; or,
- Scenario 2: 3 Angel Square delivered first; or,
- Scenario 3: Both buildings delivered concurrently.

It is anticipated that Scenario 1 is most likely construction scenario. The outline timescales for delivering of Scenario 1 for the development of 2 Angel Square first after planning approval are as follows:

Main Contract Tender Exercise –	Sept 2022 to Nov 2022
Main Contractor Selection –	Nov 2022 to Dec 2022
Commencement on Site –	Jan 2023
Completion of the Works & De-mobilisation -	Jan 2025

4.0 Site Establishment

Site Hoarding

The site will be made secure with a 2.5metres high solid painted timber hoarding system which will be situated around the whole of the boundary of the development site. Please refer to Appendix A.

A Heras fence system will be erected between the construction area and the site compound area.

Water barriers will be installed in front of any hoarding that may front onto any public highway.

Site Office & Welfare Facility

The site welfare facility will be situated within the site bounds of Plots 2 and 3.

The site welfare facility will consist of a minimum of one breakfast & lunch cabin for the site workforce, both male and female toilets with hot and cold running water, and also include one dry room and locker room. No food will be cooked on the site, but a minimum of one refrigerator and one microwaves and one kettle will be provided for storing and heating of food and drinks.

The site welfare facility will also include a minimum of one site office for the site manager, and one gatehouse/security cabin.

The site office & welfare facility will ideally be serviced from mains electricity and water. Temporary generators will be avoided (where possible).

The site office and welfare facility will be locked (and the internal lights switched off) at the end of the working day and opened at beginning of the working day.

Site Storage

Site storage will generally be situated on the part of the site surrounded by the existing Munster Street, Corporation Street, & Dantzic Street. Please refer to Appendix A for further details.

All valuable site tools and materials will be locked in storage containers.

5.0 Delivery Vehicles Ingress & Egress

Personnel Ingress & Egress

There will be a personnel gate located on Thread Street or Angel Gardens which will be controlled by a gateman. This gate will be secured overnight.

Personnel routes to and from the site will be via the existing public footpath on Thread Street or Angel Gardens.

Vehicle Ingress & Egress

It is proposed that there will be a delivery vehicle gate for ingress and egress into the site compound area from Miller Street.

There will be a delivery vehicle and personnel gate into the construction area from Miller Street.

All unloading of plant and material will generally take place inside the site hoarding line within the site compound area.

6.0 Car Parking for Site Workforce

No car parking will be provided on the construction site for any site staff or visitors.

Site operatives will be required to park their vehicles at one of the several public car parks which are situated around the NOMA development. In addition, site operatives will also be encouraged to use the local public transport provision (such as Victoria Train Station, Shudehill Bus Station, and Shudehill Tram stop).

7.0 Hours of Site Working

Site operations will be carried out in accordance with the following Manchester City Council's site working guidelines.

- Monday - Friday: 7.30am - 6pm
- Saturday: 8.30am - 2pm
- Sunday / Bank holidays: No work

The Site Workforce may arrive on site 30 minutes prior to work commencing, but no working outside these times, unless changed by prior agreement with Manchester City Council. Noise will be kept to a minimum in the first hour.

Site operations on a Saturday will be avoided where possible.

8.0 The Main Works

The site works will require a bulk excavation of the area where the offices will be located to reduce the levels and create basements.

Where the construction of 3 Angel Square is proposed to commence the temporary Marketing Suite will be dismantled and re-located elsewhere within the NOMA estate. The internal timber finishes, external timber CLT frame & cladding along with the MEP systems have been designed to be class leading in sustainability which includes the ability to be fully demountable for relocation at a future point in time.

No works will commence until the site has been fully secured and hoarded off from the public.

The appointed Main Contractor will carry out the following construction works for the Proposed Development:

Sub-structure

Subject to the detailed sequencing (to be confirmed upon Main Contractor appointment) the envisaged general construction sequence will typically be rock socketed CFA piles forming the foundations with a contiguous piled wall to address site levels. The following substructure activities are anticipated:

1. Form piling mat at upper ground level for installation of contiguous piled retaining wall

2. Install contiguous piled wall, crop piles, fix capping beam reinforcement and cast capping beam
3. Undertake bulk excavation dig to reduce the levels in the location of the proposed development and remove any excess material from the excavation to a registered waste disposal site
4. Form lower ground piling matt for foundation piling
5. Undertake CFA piling forming the building foundations
6. Excavate the pile caps and crop the top of the piles, install the foundation formwork and steel reinforcement and pour the concrete pile caps and core piled rafts.
7. Install below ground drainage, ductwork, and form any below ground builders works for cable routes

Super-structure

The exact nature of the superstructure will be confirmed at detailed design stage. It is likely the that the building will comprise a reinforced concrete frame with flat slabs forming the suspended floors. Reinforced concrete columns arranged in a regular grid pattern along with reinforced concrete cores support the slabs. The following superstructure activities are envisaged:

1. Fix core wall reinforcement and Install formwork system to form the cores (likely to be either jump form or slip form rig)
2. Begin concrete pouring for the core, fixing reinforcement and moving the upwards as the lower sections are completed
3. Once core is well progressed, fix reinforcement for lowest level of columns, fix formwork and cast
4. Install formwork for lowest suspended floor, fix reinforcement and cast slab
5. Continue moving up the floors, installing columns and floor slabs. Formwork to be stuck when concrete has cured and slabs to be propped until sufficient strength gain to span independently.

Envelope

The details of the material of the building envelope have not yet been selected, but we assume this will comprise of terracotta tiling. The roof system is likely to be a monolithic, liquid applied, fully bonded membrane 'inverted' roof covering system with loose laid ballasted insulation, and the plant room and lift housing are anticipated to be constructed with insulated cladding panels.

The following methodology remain to be confirmed, but are anticipated to comprise:

1. The concrete circulation core will be constructed in its entirety from basement level to the roof level.
2. A tower crane will erected on-site for duration of the superstructure and envelope works. A mobile crane may also be used to construct some parts of the structure.
3. The building envelope units and glazing units are expected to be lifted into position using the tower crane and potentially a mobile crane at the lower section of the building. Operatives will fix.
4. The roofing material will be lifted onto the roof via the tower crane, and operatives will complete the roof construction from at roof level.

On completion of the roof and building envelope, the roof top plant will be lifted into place and the tower crane will be dismantled.

Building Services and Internal Finishes

The internal finishes will also be transported to each floor via the internal passenger lifts.

The office building will be completed to a Grade A office specification.

Final Stages of the Works

The final element of the works will be the completion of the public realm works. Some of these works will have to be undertaken outside the site hoarding line. In these situations, a herras fenced area will be required to safeguard the public from the work areas.

Testing and commissioning of the building services and snagging of works will be ongoing up until the practical completion of the project.

The site establishment will be de-mobilised following the practical completion of the building and the external works.

10.0 Pollution

Highways Pollution

It is anticipated that there will be a potential risk of site muck/debris being tracked onto the public highway, when delivery vehicles leave the site during the early ground work stages. Subsequently, each delivery egress gate will be equipped with a jet washing facility manned by a site labour/gateman for the cleaning off of any site debris before any delivery or haulage vehicle are permitted to enter the public highway.

A road sweeper will regularly attend to keeping the public highway clear at the later stages of the project.

Construction traffic movements will be controlled by a CTMP to minimise the effects of traffic on the local highway network through appropriate routing of vehicles and delivery schedules.

Light Pollution

All lighting relating to the construction works and site accommodation will be installed in locations/positions to avoid any light spillage/glare onto the public highway or into neighbouring properties. Any lighting to the site work areas will be switched off for the non-working hours, and the only lighting potentially left on overnight will be to fire evacuation routes and circulation routes.

The site hoarding line may require the inclusion of low lux level lighting in locations where the hoarding line may front onto the public highway. This lighting will only be illuminated in the dark autumn nights and overnight.

Air Quality and Dust

The following procedures are expected to be followed by the appointed contractor.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the LA upon request.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are

minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Monitoring

- Undertake daily on-site and off-site visual inspection to monitor dust, record inspection results, and make the log available to the LA upon request.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the LA upon request.
- Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Site Preparation

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Fully enclose specific operations where there is a high potential for dust production, and they are active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used.
- Cover, seed, or fence stockpiles to prevent wind whipping.

Operating vehicle / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

Operations

- Only use cutting, grinding, or sawing equipment fitted or in conjunction with suitable dust suppression techniques.
- Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights and use fine water sprays wherever appropriate.
- Ensure equipment is available to clean any dry spillages, and clean up spillages as soon as reasonably practicable using wet cleaning methods.

Waste Management

- Avoid bonfires or burning of waste materials.

Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil as soon as practicable.

Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

Trackout

- Use water-assisted dust sweeper on access and local roads, if required
- Avoid dry sweeping of large areas
- Ensure vehicles entering and leaving site are covered to prevent escape of materials
- Implement a wheel washing system, if required
- Access gates to be located at least 10m from receptors where possible

Noise Pollution

All reasonable steps will be taken to minimise any noise disruption to adjacent businesses and residential properties. Where it is necessary to carry out noisy activities, these will be identified well in advance by the Main Contractor and the timing agreed prior to commencement.

The following procedures are expected to be followed by the appointed contractor.

- Any compressors brought on to the Site to be silenced or sound reduced models fitted with acoustic enclosures.
- All pneumatic tools to be fitted with silencers or mufflers.
- Care to be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities to be instructed on the importance of handling the scaffolds to reduce noise to a minimum.
- Most deliveries to be programmed to arrive during normal working hours only. Care to be taken when unloading vehicles to minimise noise. Delivery vehicles to be routed so minimise disturbance to residents. Delivery vehicles to be prohibited from waiting within or in the vicinity of the Site with their engines running.
- All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.
- All plant to be sited so that the noise impact at nearby noise sensitive properties is minimised.
- Local hoarding, screens, or barriers to be erected as necessary to shield particularly noisy activities; and

Problems concerning noise from construction works can often be avoided by taking a considerate and neighbourly approach to relations with the local residents. Works should only take place during given periods, e.g., during normal construction hours and not at night.

Where it is necessary to carry out noisy activities these will be carried out in accordance with Local Authority requirements, and neighbouring residents and businesses will be given advance notice of any anticipated periods of increased noise levels.

Site Waste

A Site Waste Management Plan (SWMP) specifically deals with the management of waste during the design and construction phases of the development, and is a live document that will be initiated at the later pre-construction stage of development on instruction by the Client. This document will be maintained and updated by the Main Contractor as the project progresses and will be finalised within one month of the project's practical completion. The preparation of a SWMP will be completed prior to works commencing on site. However, the following approach will be applied:

1. All construction waste will be segregated in separate recycling skips, and will be stored in the locations indicated on the enclosed plan. A registered waste company will be employed to remove the recycle skips every 1-2 days to avoid the build-up of waste and thereby

eliminating the risk of attracting vermin.

2. Bulk excavation material will be transported to an appropriate licensed disposal facility where the material can be re-used rather than sent to landfill. Litter will not be allowed to accumulate around the site perimeter.

Drainage and contamination

The following procedures are expected to be followed by the appointed contractor:

- Compounds will have hard surfacing to prevent infiltration.
- Areas of localised contamination identified during the ground investigation will be remediated/ removed as appropriate.
- A procedure will be put in place to manage previously unidentified contaminated ground that is encountered during the works; and,
- Any surplus soil arising from levelling or excavation works that has visual or olfactory evidence of contamination will be stored in sheeted stockpiles placed on hardstanding or sheeting pending its removal or treatment.
- Impacts due to incorrect storage and spillage will be mitigated by the following:
 - Design of a Drainage Plan for the site.
 - Compounds will comprise hardstanding.
 - Environmental training for all personnel.
 - Designated re-fuelling areas on hardstanding with interceptor drainage, bunds, plant nappies or similar.
 - Spill kits will be readily available.
 - Storage areas for materials will be identified; and,
 - Deliveries will be planned in advance.
- Surface water flows to be captured through a series of cut-off drains to prevent water entering excavations or eroding exposed surfaces.
- If dewatering of excavations is required, pumped discharges would be passed through a washout area, settlement /attenuation ponds and silt fences to capture sediments before release to a watercourse / drain.
- Stockpiles will be located away from a watercourse or site drainage system to prevent leaching of contaminants. Protective coverings will help prevent runoff stripping a stockpile. Concrete should also be stored to prevent release into drains.
- Topsoil / subsoil would be stored away from watercourses and on flat lying land (minimum 20m away on flat land). Where this is not possible and it is to be stockpiled for longer than a two-week period, the material would, as soon as possible either be covered with geotextile mats, seeded to promote vegetation growth, or drainage provided to a suitable settlement area.
- Plant wheel washing will take place in designated locations. The area will be tanked and will not be allowed to discharge into a watercourse or infiltrate to groundwater.
- Tools and plant would be washed out and cleaned in designated areas within the site compound where runoff can be isolated for treatment before discharge to surface water drainage under appropriate consent and / or agreement, or otherwise removed from site for appropriate disposal at a licenced waste management facility.
- Haul roads will be designed so that the length is kept to a minimum, but still serves its purpose. The gradient will be shallow to prevent increasing runoff velocity and, if possible, bunds and / or discrete ditches constructed to intercept the runoff. Haul roads will be sprayed regularly to keep down dust. If any section of a haul road is hard surfaced, then it will be swept on a regular basis to prevent accumulation of dust and mud. Gullies will be covered when not in use before the final bituminous running surface is laid.
- Simple measures can be taken to prevent oil and hydrocarbons becoming pollutants, such

as:

- Maintenance of machinery and plant.
 - Drip trays.
 - Regular checking of machinery and plant for oil leaks.
 - Correct storage facilities.
 - Check for signs of wear and tear on tanks.
 - Care with specific procedures when refuelling.
 - Designated areas for refuelling.
 - Emergency spill kit located near refuelling area.
 - Regular emptying of bunds; and
 - Tanks located in secure areas to stop vandalism.
- In accordance with the EA guidance, all fuel tanks on-site will have a bunded containment of a minimum of 110% fuel tank capacity. There would be no drainage point from the bunded catchment area and tamperproof taps / valves would be installed. All empty fuel containers or drums would be stored within a catchment area prior to their removal from the site. Oil traps would be incorporated in pertinent drainage systems to prevent accidental spillage being discharged into the surface runoff. Furthermore, spill kits would be stored at refuelling areas in the event of accidental spillage.
 - Where fuelling of large machinery is required, drip trays and absorbent mats or pellets would be utilised. General maintenance would also be undertaken in a designated area and similar contamination prevention measures would be adopted.
 - All runoff from the site would be intercepted and treated to remove sediment, oils, and other substances prior to discharge from the site. As construction of the proposed development progresses, the drainage system would be progressively implemented and would also include pollution prevention control systems.

11.0 Health & Safety

Construction Health & Safety Plan

A Construction Health and Safety plan will be developed in detail for the site works prior to any works progressing. Separate Risk Assessments and Method Statements will be required for individual operations carried out as part of the works. All trade contractors are to submit their own health and safety plans, carry out risk assessments / method statements for their works and everyone on site are required to be CSCS qualified.

The construction works will be legally obligated to comply with the CDM regulations 2015.

Emergency Evacuation Procedure

Contact names and phone numbers will be made available in case of out of hour's emergencies relating to the site. This information will be displayed prominently on the hoarding.

A fire evacuation plan will be drawn up and prominently displayed on site by the appointed Main Contractor. The site offices will have their own plans drawn up. Site evacuation routes will be clearly marked on site, as will fire extinguisher points and practice drills will be carried out.

12.0 Ecology

Any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season will be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist.

APPENDIX A – Logistic Plan for Scenario 1.

Delivery Strategy – Plot 2 Construction Stage

-  Building Footprint
-  Site Office / Welfare
-  Marketing Suite
-  Site Compound / Safe Access
-  Hoist Zone
-  Material Movement Zone
-  Unloading Area
-  Retaining Structure
-  Pedestrian Access Route
-  Vehicle Site Access Route
-  Site Hoarding
-  Vehicle Site Access Gate
-  Pedestrian Site Access Turnstile



APPENDIX B –Logistic Plan for Construction of 3 Angel Square after 2

Delivery Strategy – Plot 3 Construction Stage

-  Building Footprint
-  Site Office / Welfare
-  Completed Building
-  Site Compound / Safe Access
-  Hoist Zone
-  Material Movement Zone
-  Unloading Area
-  Retaining Structure
-  Pedestrian Access Route
-  Vehicle Site Access Route
-  Site Hoarding
-  Vehicle Site Access Gate
-  Pedestrian Site Access Turnstile

