

BM BARRETT MAHONY CONSULTING ENGINEERS CIVIL & STRUCTURAL



CONSTRUCTION MANAGEMENT PLAN

PROPOSED MIXED USE RESIDENTIAL DEVELOPMENT,

THE CONCORDE INDUSTRIAL ESTATE, NASS ROAD, WALKINSTOWN, DUBLIN 12

**PROJECT: MIXED USE RESIDENTIAL DEVELOPMENT AT CONCORDE
INDUSTRIAL ESTATE, NAAS ROAD, WALKINSTOWN, DUBLIN 12**

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**CONSTRUCTION MANAGEMENT PLAN
FOR MIXED USE RESIDENTIAL DEVELOPMENT AT
THE CONCORDE INDUSTRIAL ESTATE, NAAS ROAD, WALKINSTOWN, DUBLIN 12**

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	DEMOLITION	4
3.0	EARTHWORKS.....	5
4.0	NEW CONSTRUCTION	5
5.0	SITE COMPOUND	6
5.1	SITE COMPOUND & SITE PARKING.....	6
5.2	HOARDING.....	6
6.0	TRAFFIC MANAGEMENT	6
6.1	GENERAL.....	6
6.2	CONTRACTORS TRAFFIC MANAGEMENT PLAN.....	7
6.3	PUBLIC TRAFFIC	8
6.4	CONSTRUCTION TRAFFIC.....	8
7.0	HOURS OF WORKING / DELIVERY TIMES.....	8
8.0	NOISE AND VIBRATION	8
9.0	DUST.....	9
10.0	POLLUTION CONTROL	10
10.1	GENERAL.....	10
10.2	WATER	10
10.3	SOIL.....	11
11.0	REINSTATEMENT / ROAD CLEANING	11
11.1	CONSTRUCTION STAGE.....	11
11.2	ON COMPLETION	11
12.0	SITE SAFETY & SECURITY	12
13.0	HARMFUL MATERIALS.....	12

APPENDIX 1 - SITE LAYOUT

APPENDIX 2 - SITE VEHICLE ACCESS

1.0 INTRODUCTION

Development Ocht Limited has commissioned Barrett Mahony Consulting Engineers (BMCE) to prepare a Construction Management Plan (CMP) for the mixed-use Concorde Residential Development at Concorde Industrial Estate, Naas Road, Walkinstown, Dublin 12. The proposed development will consist of 8no., above ground floor, levels extending across most of the site along with a single level basement.

The subject site is currently occupied by a number of small businesses focused towards automobile repair/sale, along with one unit being used as a gym. The building at the south-east corner of the site and the last unit to the west end of the building are currently unoccupied. The site is located to the west of Dublin City Centre, 220m south-west of the intersection of the Old Naas Road and the Naas Road.

The site is bounded to the north by the Naas Road, to the east by an un-named public access road (cul de sac), to the west by an ESB high voltage mast and compound and to the south by a car yard and Drimnagh Castle playing fields. The main point of access to the site will be via the un-named road to the east which, in turn, is accessed from the Naas Road via a signalised junction (see Appendix 2 for site vehicle access plan). The overall site area is 18,800m² with the proposed building footprint area being 5,825 m². In total the development will consist of 492 non-commercial residential units totalling 31,034m² and commercial space totalling 3,327m². The proposed apartment mix consists of 104 no. studio units, 136 no. 1 bed units, 21 no. 2 bed units (3 person) and 231 no. 2 bed units (4 person). The site surface is generally flat, at approximately +39.65m. The surface levels drop in the south-east corner by 0.5 m to +39.15m. There is a low retaining wall along the south boundary. There is also a low level retaining wall (circa 0.75m in height) along the full northern (Naas Road) boundary.

The new development will consist of one large building divided into 5no. blocks (Blocks A-E) and a second smaller building in the south-east corner of the site (block F). Block A is the front block of the development, parallel to the Naas Road for the full length of the site. Block A will comprise of a mixture of commercial units (Ground to First Floor) and residential units (Second to Seventh Floor) with the Seventh Floor setback on the west side of the block. Blocks B, C and D will extend from Ground Floor to Seventh Floor and comprise of residential units alone. The three blocks will extend from close to the southern boundary, in a north-south orientation and connect with the south side of block A, with setbacks at the south end of the blocks at the Fourth, Fifth and Sixth Floors. Block E of the development will run perpendicular to the east end of block A, parallel to the un-named road which bounds the site to the east. It will comprise of residential units from Ground to Seventh Floors. Block F will be in the south-eastern corner of the site, extending from Ground to Seventh Floor and consisting solely of residential units. The basement of the development will be a single level basement with car parking spaces, bicycle storage spaces, plant rooms, waste and water storage areas the total basement area will be 7875m². At Ground Floor three ESB substations will be provided. There will be additional carparking spaces along the Naas Road boundary of the site and additional bicycle storage spaces will be provided within the residential courtyards. A total of 238 no. car parking spaces will be provided, with 200 no. provided in the basement car park allocated to the residential units. 38 no. surface car parking spaces are provided for the commercial units and this will incorporate 10 no. car club spaces. The development includes 516 no. bicycle parking spaces for the apartments and commercial units, located at basement and ground floor level. A full site layout plan can be found in Appendix 1.

The development will consist of some work outside of the site boundary in the public space by a specialist contractor and will involve the construction of a new pedestrian crossing and footpath along the Naas Road. The specialist contractor will prepare a method statement for this work to be agreed with Dublin City Council and Transport Infrastructure Ireland. This element of the development is not considered further in this report.

This Construction Management Plan looks at how various aspects of the construction will be carried out in order to minimise the impacts of the proposed development at Concorde Industrial Estate on the surrounding area. The sequence and method of construction outlined below is to be confirmed with the Contractor prior to commencement on site. The Contractor will be required to prepare a detailed CMP on foot of these proposals.

Construction of the development consists of the following principal elements:

- Demolition of existing structure.
- Site clearance and excavation for new basement and building foundations.
- Associated site drainage, earthworks and landscaping.
- Construction of new car parking locations.
- Construction of new Development Building.

These elements will be dealt with in more detail below.



Figure 1.1 – site location plan.

2.0 DEMOLITION

The planning application submitted for the proposed works requires demolition of the existing structures on the site, formerly industrial buildings which have a gross floor area of 8,322 m², which makes up approx. 44% of the total site footprint. These buildings can be seen within the site in Figure 1.1. They are steel framed warehouse type structures with a concrete first floor in some areas.

All demolition works are to be in accordance with the following guidelines:

- BS 6187:2000 'Code of practice for demolition'
- Health and Safety Executive Guidance Notes GS 29 / 1, 2, 3 & 4.
- S.I. 504 Safety, Health & Welfare at Work (construction) regulations 2006
- Air Pollution Act 1987
- Environmental Protection Agency Act 1992

- BS 5228:2009 Part 1 'Noise Control on Construction & Open Sites'.

NOTE: The demolition contractor is required by law to appoint a competent person, experienced or trained for the operations they are involved in, to supervise and control of work on site.

3.0 EARTHWORKS

The bulk earthworks are associated with the site strip, basement excavation, provision for foundations and service trenches. The estimated earthworks quantities are set out in Table 1 below. The material excavated in the site strip is expected to be either made ground (inert fill) or Brown Boulder clay. Brown Boulder clay leading to Black Boulder clay is expected to be encountered during bulk excavation for the basement. Rock is not expected to be present within the excavated depth. Estimated earthworks quantities are set out in Table 3.1.

Item	Soil Excavation Volume (m ³)	Rock Excavation Volume (m ³)	Fill Volume (m ³)	Balance (m ³) = Excavation - Fill
*Site Strip	9,400	0	0	9,400
Ground Floor Fill	0	0	11,471	-11,471
Basement Excavation	21,656	0	0	21,656
Buried Services	1,200	0	1,000	200
**Landscaping	0	0	2,038	-2,038
Total	32,256	0	14,509	17,747

Table 3.1

* Assumed 500mm site strip of entire surface area.

** Assumed 400mm fill required for soft landscaping areas.

Using large 4-axle trucks with 18.0 tonne capacity (36m³) the balance of "excavation less fill" equals to approx. 493 truck movements. Using smaller 3-axle trucks instead with 18m³ capacity equates to double this number.

Excavated material will be generally disposed off-site to a licensed facility for land reclamation. Topsoil/clay will be retained for landscaping/berming. The topsoil/clay should be carefully stored in segregated piles on the site until subsequent reuse.

4.0 NEW CONSTRUCTION

The new construction will consist of the following items:

1. Construction of Development buildings (Blocks A to F) with a total gross floor area of 45,675 m².
2. Construction of a Basement with 200no. car parking spaces, 326no. bicycle storage spaces, plant areas, waste and water storage with an approx. total gross area of 7,875m².
3. Construction of 3no. ESB substations with a total gross area of 74 m².
4. New surface roads, footpaths, cycle lanes, soft and hard landscaping.

5.0 SITE COMPOUND

5.1 SITE COMPOUND & SITE PARKING

Limited parking for construction workers will be provided within the site for the period of construction. It is noted the site is readily accessible by both the Luas and Dublin Bus services. The contractor parking areas are to be confirmed by the appointed Contractor prior to commencement.

5.2 HOARDING

The new works will be hoarded off or fenced off from the public at all times. A 2.4m minimum high plywood painted timber hoarding will be provided along the long-term boundaries at the entrance, and at other areas around the site where the perimeter fence/wall is not deemed sufficient for safety and security reasons. Heras type fencing will be used on short term site boundaries where appropriate to suit the works. The hoarding alignment and specification are to be confirmed by the appointed Contractor prior to commencement.



Figure 5.1 – Typical Site Hoarding Arrangement

6.0 TRAFFIC MANAGEMENT

6.1 GENERAL

The works associated with the new development will result in additional traffic on the road network with the removal of excavated material, small amounts of demolition waste, and the delivery of new materials, concrete trucks etc.

Construction traffic access to the site will be via the existing access onto the Un-named Road which connects onto the Naas Road Figure 1.1 previous and Figure 6.1 and Figure 6.2 below.

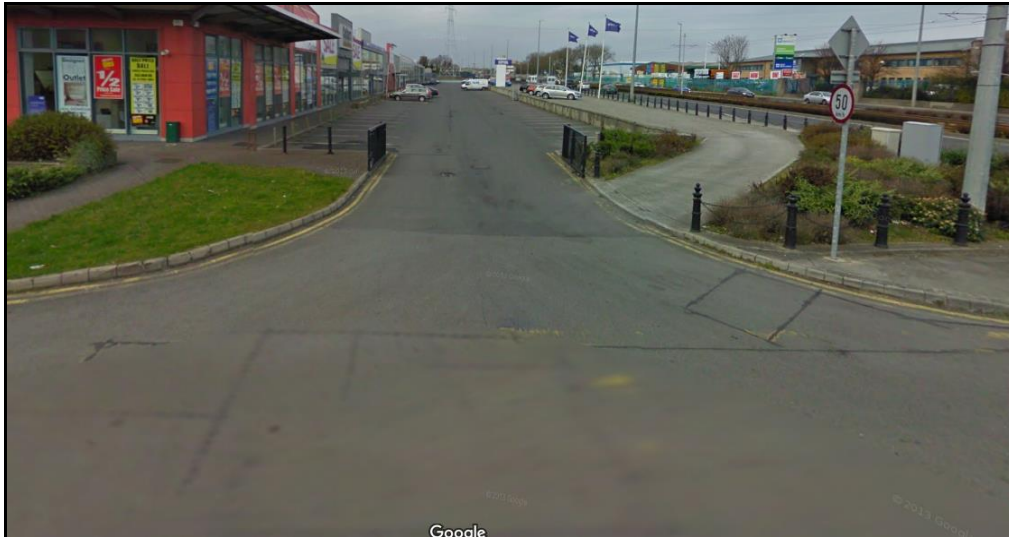


Figure 6.1 – Existing Site Access onto the Un-named Road Retained During Construction



Figure 6.2 - Existing Signalised Junction on the Unnamed Road leading onto the Naas Road.

6.2 CONTRACTORS TRAFFIC MANAGEMENT PLAN

A Traffic Management Plan will be prepared by the contractor and agreed with Dublin City Councils Transportation Department, to mitigate any impact of construction on the surrounding road network. The Traffic Management Plan will provide for the following where required:

1. The contractor shall be responsible for and make good any damages to existing roads or footpaths caused by his own contractor's or suppliers transport to and from the site.
2. The contractor shall at all times keep all public and private roads, footpaths entirely free of excavated materials, debris, rubbish, provide vehicle wheel wash and thoroughly clean all wheels and arches of all vehicles as they leave the site.
3. The contractor shall confine his activities to the area of the site occupied by the works and the builders' compound, as far as practicably possible, during any particular phase of the development.
4. Haul routes to and from the site will be defined and agreed with the Local Authority.
5. Properly designed and designated entrance and egress points to the construction site for construction traffic will be used to minimize impact on external traffic.

6. Flagmen shall be used to control the exit of construction vehicles from the site onto the public road, if required.
7. Existing fire hydrants are to remain accessible as required.

Suggested headings for the Contractor's Traffic Management Plan (not exhaustive)

- Construction Traffic Management – General Requirements
- Traffic Safety and Control
- Temporary Traffic Diversions & one-way systems
- Emergency Contact Numbers and Personnel
- Emergency Plan
- Access Arrangements
- Compound and Staff Parking

6.3 PUBLIC TRAFFIC

The management of the Public traffic, both pedestrian & vehicular, is a key part of this development due to the proximity of the busy Naas Road.

6.4 CONSTRUCTION TRAFFIC

The vehicles associated with the construction activities are as follows: -

- Excavators;
- Dump trucks;
- Concrete delivery trucks;
- Concrete pumps;
- Delivery trucks – flatbed & containers;
- Mobile cranes;
- Mobile hoists;

7.0 HOURS OF WORKING / DELIVERY TIMES

Unless required otherwise by the Local Authority, it is proposed that standard construction working hours will apply, i.e.:

- 8am - 6pm Mondays to Friday
- 8am to 1pm on Saturdays.

Any works proposed outside of these periods shall be strictly by agreement with the Local Authority in advance.

8.0 NOISE AND VIBRATION

Some impact of noise is likely to occur as a result of the construction activity. Construction work is of a temporary nature and the resulting noise levels are usually acceptable, subject to typical management and time control procedures which are common to most urban based development projects.

Best practice noise and vibration control measures will be employed by the contractor and are to include the following:

- Site compounds should be located away from noise sensitive boundaries within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.
- For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation. Mobile plant should be switched off when not in use and not left idling.
- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system.

- For percussive tools such as pneumatic breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- Provision of standard solid construction hoarding to the perimeter of the site to a minimum height of 2.4m
- Noise generating activities should be programmed so that cumulative effects are avoided.

All construction plant used on site will comply with the relevant Irish regulations in relation to noise and vibration requirements.

Attention should also be paid to the recommendations given in BS 5228.

No rock excavation is anticipated on the site as noted in Section 3.0.

9.0 DUST

The Contractor's proposals are to include a dust minimisation plan in accordance with best practice and with reference to the following:

- Air Pollution Act 1987
- BS 6187: Code of Practice for Demolition

Measures are to include the following:

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.
- Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

10.0 POLLUTION CONTROL

Prior to the commencement of construction, the appointed contractor will be required to obtain formal agreement from the Local Authority on pollution prevention measures as well the overall approach and emergency procedures for all construction stages.

Contractors will have regard to the following best practice guidelines to ensure that water bodies are adequately protected from construction work:

- Construction Industry Research and Information Association (CIRIA) C649: *Control of water pollution from linear construction projects: Technical guidance* (Murnane et al. 2006)
- *CIRIA C649: Control of water pollution from linear construction projects: Site guide* (Murnane et al. 2006)

This plan will provide precise details on methods to prevent sediment or pollutants from leaving the construction site:

10.1 GENERAL

- Demolition and Construction methods used should be tailored to reduce, as much as possible, dust and noise pollution.
- In order to prevent the accidental release of hazardous materials (fuels, paints, cleaning agents, etc.) during site activity, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks should be used on the site during the construction phase of the project. Safe materials handling of all potentially hazardous materials should be emphasised to all construction personnel employed during this phase of the project.
- Prior to the commencement of demolition and construction, details will be provided for locations and safe-guards for refuelling of machinery, machine servicing, concrete-mixing, etc.
- Comprehensive traffic management procedures, including the provision of access to all roads, and access/egress points should be prepared and agreed with the Local Authority. These traffic management measures should be implemented at times when traffic disruption may be experienced.
- Road sweeping and/or wheel wash facilities should be provided, as required.
- All oils/diesel stored on site for construction equipment are to be located in appropriately bunded areas.
- The location and size of stockpile areas for sands and gravel will be specified and identified on the maps.
- Sediment runoff will be minimised by standard engineering measures including sediment skirts around soil stockpiles, sediment retention barriers in surface water drains and the use of adequate construction roads.

10.2 WATER

- A method statement for all works to be carried out will be prepared by the contractor and agreed with the Local County Council prior to commencement of works to outline what measures are to be taken to ensure there is no loss of service during the works.
- Dewatering measures should only be employed where necessary.
- In the event of groundwater being encountered during the demolition or construction phase, mitigation measures will include;
 - Dewatering by pumping to an appropriate treatment facility or settlement tanks in order to allow sediment to settle from solution prior to discharge.
 - Excluding contaminating materials such as fuels and hydrocarbons from sensitive parts of the site i.e. highly vulnerable groundwater areas.
- If concrete mixing is carried out on site, the mixing plant should be sited in a designated area with an impervious surface.

- Existing surface drainage channels within the site that serve adjacent lands should be retained where possible to prevent causing increased flooding impacts.
- All surface water sewer connections should be made under the supervision of the Local Authority and checked prior to commissioning.
- All onsite surface water drains should be tested and surveyed prior to connection to the public sewer to prevent any possibility of ingress of ground water.
- All surface water manholes and drains will be inspected and where necessary sealed to ensure that uncontrolled ground water inflow does not occur.
- Filters and silt traps will be used to prevent rain washing silts and other materials into the surface water network and creating blockages.
- Adjacent watercourses/groundwater need to be protected from sedimentation and erosion due to direct surface water runoff generated onsite during the demolition and construction phase. To prevent this from occurring surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete.
- Regular inspections of settlement tanks are to be carried out and additional treatment used if settlement is not adequate.
- Bunded areas will be created for the storage or use of any fuels, oils, greases, cement, etc.
- Emergency spill kits will be kept close to works.

10.3 SOIL

- If un-contaminated, any existing topsoil will be retained on site to be used for the proposed development. Topsoil should be stored in an appropriate manner on site for the duration of the construction works and protected for re-use on completion of the main site works.
- During the demolition and construction phase, all excavations and exposed sub-soils in open cuts will be blinded and protected with clean broken stone as soon as possible after exposing the subsoil in order to prevent erosion.

11.0 REINSTATEMENT / ROAD CLEANING

11.1 CONSTRUCTION STAGE

Prior to the works commencing, a detailed photograph survey (condition schedules) of adjoining walls, roads, footpaths, grass verges etc. is to be prepared. Copies of the relevant parts are to be made available to adjoining owners and Dublin City Council. This record will form the basis of assessing repairs to adjoining areas in the future should a dispute arise as to their cause. Roadways are to be kept clean of muck and other debris. A road sweeping truck is to be provided if necessary to ensure that this is so.

11.2 ON COMPLETION

Reinstatement at completion of the works will involve:

- The cleaning of the existing sewers in the vicinity of the development as required.
- Testing and cleaning of all watermains in the development to the requirements of the Local Authority prior to connection to the public watermain. This will reduce the risk of contamination to the public water supply when the new network is connected to the system.
- Repair of any damage to any adjacent public roadways, kerbs, grass verges etc. in accordance with Dublin City Council requirements.
- Reinstatement of all excavations to the requirements of Dublin City Council.
- Leaving the area in a neat and clean condition, removing all deleterious materials that may have been deposited during construction works.

12.0 SITE SAFETY & SECURITY

The Contractor will be responsible for the security of the site. The Contractor will be required to:

- Operate a site induction process for all site staff.
- Ensure all site staff shall have current '*safe pass*' cards.
- Install adequate site hoarding to the site boundary.
- Maintain site security staff at all times.
- Separate pedestrian access from construction at the main site entrance off the Naas Road and provide a safe walkway for pedestrians along the main access road in to the site.
- Ensure restricted access is maintained to the works.

13.0 HARMFUL MATERIALS

Harmful materials shall be stored on site for use in connection with the construction works only. These materials shall be stored in a controlled manner. Where on site fuelling facilities are used there shall be bunded filling area using a double bunded steel tank at a minimum.

APPENDIX

1

SITE LAYOUT





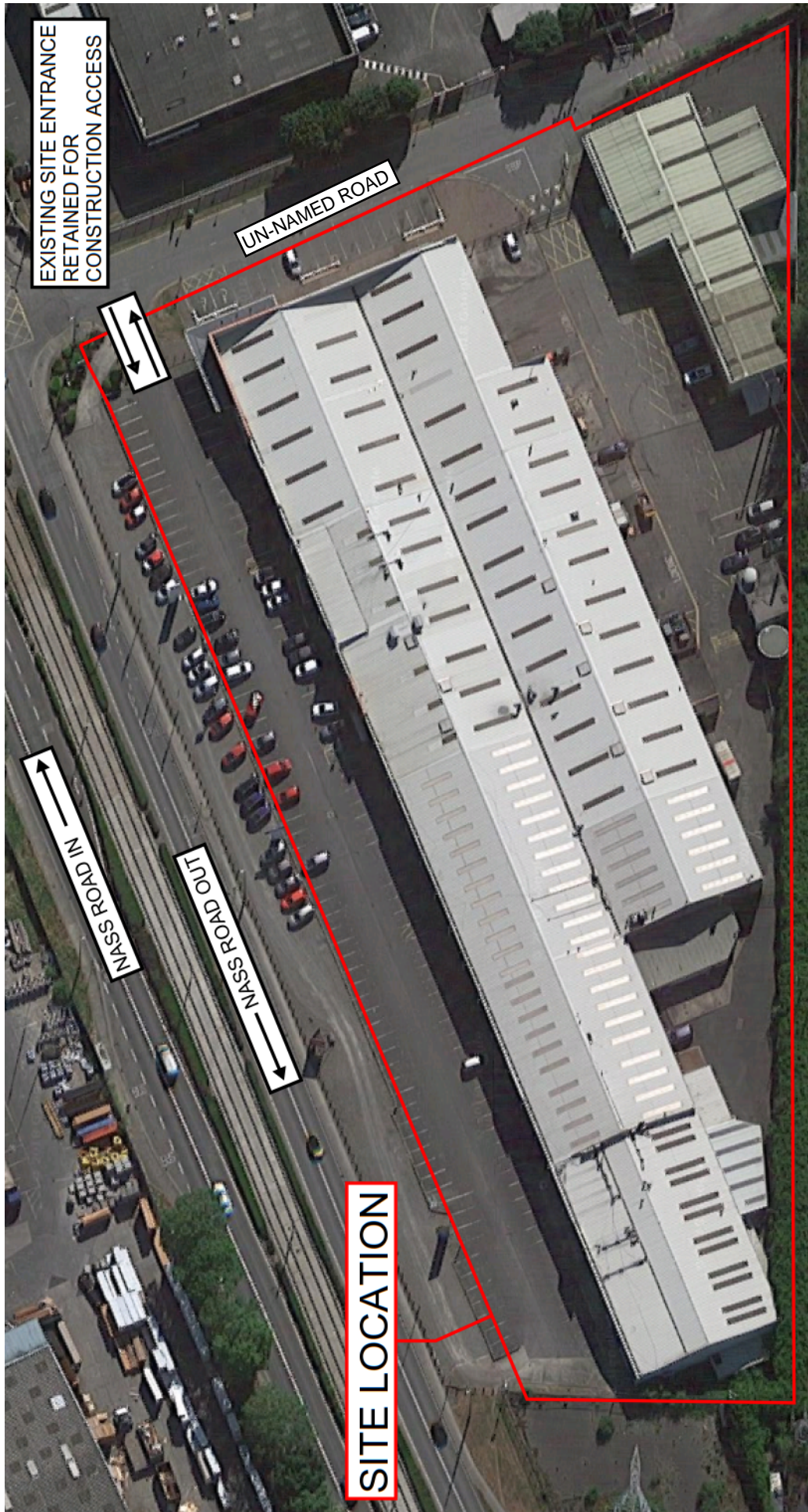
SITE LAYOUT

APPENDIX

2

SITE VEHICLE
ACCESS





SITE VEHICLE ACCESS

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