70-90 PALL MALL, VAUXHALL, LIVERPOOL, L3 7DB

Construction Methodology and Management Strategy

Introduction

The purpose of this document is to give a broad overview of the construction proposals in respect of the proposed works at 70-90 Pall Mall, Liverpool. Further detailed information will be included within our construction phase plan and sub-contractors specific risk assessment and method statements.

Scheme Overview

Construction of a mixed use residential scheme comprising of Blocks A,B,C,D,E & F and retaining the existing brick built Victorian warehouses to the Pall Mall Façade.

The scheme comprises of 366 mixed class C3 apartments, 518 car park units, 2100m2 office space, 220m2 of ground floor café space – class A3/A4, 450m2 retail space, restaurant, Spa & gym over 2 floors, and 3125m2 amenity/open space.

The current program indicates a start date on site of 14th July 2015 with enabling works commencing first with the total program being approximately 30 months in total.

A brief overview of the proposed program is;

- Site establishment and perimeter hoarding
- Sub-structure, piling mat, piling, associated ground-works.
- Core and staircase
- Floor slab construction
- Envelope works (including curtain walling, reglit glass planks, smooth-finished rainscreen cladding, profiled metal rainscreen cladding, COR-TEN steel cladding – naturally weathered, Aluminium framed windows/doors/balconies, glass louvres and timber panelling).
- Internal finishes, including M&E, Lifts etc
- External works including roof garden landscaping, car parking spaces and entrance/exit roads.

Project Directory and Key Contact Details;

Site Address:

70-90 Pall Mall
Vauxhall
Liverpool
L3 7DB

Client:

PHD1 Construction Ltd
Cinnamon House
Cinnamon Park
Fearhead
Warrington, WA2 0XP

Principal Contractor

PHD1 Construction Ltd
Cinnamon House
Cinnamon Park
Fearhead
Warrington, WA2 0XP

CDM Coordinator

Rawlings Safety and Training Consultancy Services Ltd
46 Roby Road
Huyton

Architects

Blok
Edward Pavilion,
Edward Pavilion,
Albert Dock,
Liverpool,
L3 4AF

Structural/Civil Engineer

Bell Munro Consulting Limited,
Turing House,
5 Archway,
Manchester, M15 5RL

M&E Consultants
Futureserv
211 Deansgate
Manchester
M3 3NW

Transport Consultants

DTPC
The Studio
3 Philips Road
Weir
Bacup
Lancashire
OL13 8RH

Other consultants & contractors to be appointed & confirmed as build progresses.

Site Location

The site is approximately 1.07ha and is located in the Vauxhall, north of of Liverpool City Centre. The site is fronted onto Pall Mall and bounded by Leeds st to the south, with an existing car park off Pumpfield Rd to the rear/east elevation.

Traffic Management and Access

Vehicular and pedestrian access onto site will be via the main site entrance off Pall Mall, exact location to be agreed following consulatation with adjacent land owners and LCC/Amey. To minimise the impact on adjacent property occupants, members of the public and adverse environmental impacts, loading & deliveries to the project will only occur via pre booked coordinated arrangement with PHD1 site management, any vehicles arriving at site outside of this arrangement will be turned away and rescheduled. Our main control measures which will be adopted in respect of traffic management will be;

- Where assessed & identified by PHD1 management, Haulage contractors will fit dust covers to load during removals & material deliveries.

- During the initial works PHD1 intend to utilise road brushes where necessary to maintain the highway.
- Dust suppression (Watering/Mist Spray) during vehicle loading procedures will be applied.
- Water suppressed road cleaning (periodic following site assessment by PHD1 site manager) will occur to the surrounding highways.
- Existing drainage systems to be maintained and cleaned by PHD1 to prevent any environmental impact from proposed procedures. Initial CCTV survey to be carried out and issued to all parties as a record of current condition of drains.
- Plant & vehicle selection will be assessed to maintain noise levels to a minimum.
- Vehicles will turn of engines during loading process (reduction of noise & emissions)
- Material loading and waste removal process will be coordinated & arranged to maximise on reduction of noise levels, no multi vehicle attendance
- Vehicles attending site will be coordinated by PHD1 site manager (pre booked only) to enable minimum attendance at any one time (Haulage vehicles will not be allowed to park up and wait around the site perimeter on within site, unless immediately loading/unloading)
- Placement of construction site traffic signage on all surrounding streets.
- Contractor car parking will be available on site and will be managed by PHD1 site management.

Traffic management and access summary

It is envisaged that there will be vehicles entering and egressing from site every day for the duration of the works. The majority of vehicles will be delivering materials, although there will be a number removing excavated materials, equipment and surplus and waste materials. The types of vehicles and materials will vary duration the course of the construction. Access/egress arrangements for the site will allow for safe pedestrian and vehicular access onto site that has the least impact on members of the public and surrounding land uses.

Trained and competent banks-men will control all vehicular movement in and around the site. Deliveries will be timed to avoid busy rush hour periods and also a build up of site traffic. Construction vehicles will not be allowed to wait on Seel Street or adjacent approach roads.

Liaison will occur with our neighbours throughout the construction phase verbally and by mail drop to notify all concerned of up & coming construction activities that may affect them.

Traffic Management and Access cont'd

Deliveries of construction materials i.e.; concrete and frame materials – A Gateman will be employed to oversee logistics and police the gated entrance. Banksman will be in attendance from each sub-contractor for off-loading safely.

These arrangements will be reviewed through the project.

Site Layout and Compound

The site accommodation and welfare facilities proposed will be 2 storey porta-cabin arrangement 32' x 10' linked together, with proprietary staircases.

The lower level facility will comprise canteens, drying rooms (lockers) and toilet blocks and the upper level cabins will comprise site offices and first aid/induction areas. Storage of materials will be in segregated, fenced off areas at a safe distance from the site accommodation. Combustible materials will be stored separately with appropriate protection as required and dictated by data sheets.

Pedestrian walkways will be established from the compound to each of the working areas.

There will be no on-site parking for site operatives, management or visitors. We are currently negotiating with a local car park operator for a number of paid spaces made available and tickets for entry given at time of induction.

At all times welfare facilities will comply with the requirements of the Construction (Design and Management) Regulations 2007 (2015).

The PHD1 Construction supply chained welfare supplier will provide a Method statement and Risk Assessment for the delivery and installation of Project welfare and administration cabins. The supplier will detail all working at height, fall prevention and compliance of the LOLER Regulations 1998.

Security

New hoarding will be erected across Pall Mall frontage at minimum of 2m from road edge, (Hoarding licenses will be applied for with LCC/Amey) and around adjacent elevations. Gates to the site compound will be 5/6m overall width and splayed to assist with access for larger delivery vehicles. We do not envisage employing out of hour's security initially however consideration may be given to installing remote CCTV monitoring with alarm for accommodation.

The site will be left safe and secure at the end of each shift and at any time the site is left unattended by PHD1 Construction.

Sub-structure works

The sandstone we assume is weathered and very weak at its surface becoming more competent with depth and exhibiting unconfined compressive strength values consistently within the range 3-9MPa below 3mbgl. This will be confirmed following the issue of a full Site Investigation Report.

In these conditions, spread foundations may be considered. Foundations should bear on prepared rock formations, ensuring that the very weak mantle is removed. It is anticipated that foundations will be set at around 1m below rock-head level. A Presumed Bearing Value of 750kN/m2 may be taken as the basis of foundation design for foundations bearing on rock prepared as described above.

Piling

There will be circa 600 No CFA piles, 350/450mm diameter, reinforced to provide specific loadings, to a minimum depth of 9m. Pile Caps will generally be 900mm deep traditional square and triangular formation with 75mm projection from the pile heads. Caps reinforced with bent rebar as per Bar Bending Schedules, the design and ultimate number of piles will only be established once the loading information has been issued.
Sub-structure works will then comprise construction of reinforced ground beams linking pile caps, core bases and lift shaft bases to ground floor and basement.

All elements reinforced to a minimum of 125kg/m3. Reinforcement starter bars for all columns/walls etc. Ground floor slab will be 250mm thick reinforced with top and bottom layer of mesh, grade A393 or equivalent, thickened at caps/beams.

Incoming services will be coordinated and detailed at the next stage of design development.

Further detail on the design proposal and intent is available within the civil and structural engineers design and tender package and the exact methodology of work for each component will be defined within the specialist sub-contractors risk assessment and method statements.

Super structure works

Design development is ongoing, however the current proposals in relation to the super-structure frame are a mixture of in-situ reinforced concrete columns & slabs, and pre-cast elements – stairs etc.

The envelope to the building will be as per the Materiality studies 1 & 2 previously submitted by Blok Architects.

The roof structure will comprise traditional finishes such as insulated sarnafil laid to falls to outlets etc – up-stands will be formed within the pre-cast roof slab to provide the roof parapet.

Further detail on the design proposal and intent is available within the architect and civil and structural engineers design and tender package and the exact methodology of work for each component will be defined within the specialist sub-contractors risk assessment and method statements.

Crane Strategy

Various options are currently being explored with the civil and structural engineer and the specialist sub-contractors.
Initial assessment by our preferred supplier would be 3 No luffing jib tower crane with a max jib length of 45m. No overs-ailing will occur due to luffing jib. Cranes will be various heights to suit the different blocks they will serve.
See Attached prelim location plan for position of cranes.
Revision A; 03.06.15

Ongoing liaison will occur with the specialist engineer and the appointed sub-contractor. PHD1 Construction will stringently oversee all activities associated with crane use for the duration of the works, including the crane base design, erection and use, including ensuring that inspection, tests and maintenance is undertaken as required by the Lifting Operations and Lifting Equipment Regulations and manufacturers guidelines.

Prior to any crane being erected full liaison will occur between PHD1 Construction, the structural engineer and any specialist sub-contractor, including the crane supplier, to establish the suitability of the ground conditions were the crane(s) will be sited, and also to ensure that the ground is capable of taking the loads of the crane, this will be reflected in the crane base design. At this stage we anticipate that a road closure may be required out of hours to facilitate the crane erection – this will be consulted with LCC/Amey and all appropriate applications and licenses will be applied for and duty paid.

All crane operations will conform to the requirements of the Lifting Operations and Lifting Equipment Regulations 1998, BS 7121-1 Code of Practice for the Safe Use of Cranes and GE700/D3 'Lifting Equipment and Accessories for Lifting' at all times.

Following the cranes erection, an independent examination will be undertaken and this will be followed by weekly inspections undertaken by a competent person, and a programmed of planned inspection, test and maintenance as defined within the Lifting Operations and Lifting Equipment Regulations and the manufacturers guidelines.

The sub-contractor responsible for the lifting operations will produce a lifting plan, which includes risk assessments and method statements and provide these to the principal contractor. The lifting plan must be amended to reflect any specific risks associated with the load being transferred.

Appointed Person

An appointed person will be in place prior to each specific lifting operation. (This person must not be the crane driver). The appointed person will be responsible for ensuring a safe system of work is implemented. The appointed person will be sufficiently trained and experienced and competent to carry out his duties.

All lifting operations will be carefully planned to ensure they are carried out safely. The lifting plan will result in a safe system of work/method statement that be written down.

Key elements will include:

- planning – including site preparation, crane erection and dismantling;
- selection, provision and use of a suitable crane and work equipment including safe slinging and signalling arrangements;
- maintenance and examination of the crane and equipment;
- provision of properly trained and competent personnel;
- supervision of operations by personnel having the necessary authority;
- thorough examinations, reports and other documents;
- preventing unauthorised movement or use of the crane; and
- measures to secure safety of persons not involved in the lifting.

PHD1 Construction insist on suitable trained personnel to be employed in these key roles, and would request copies of their training records and qualification's and there would be regular coordination meetings between the respective parties and that all records of these meetings are kept on file with any actions being discharged

When finalising The Method Statements and Risk Assessments were crane operations are required, all of the above must be demonstrated. Lifting plans and all associated design and construction documentation will adequately address the complexities and additional risk posed by the use of 3 tower cranes on site.

External Works

The landscaping and external works will be developed with the landscape architect employed by Blok with regard the surface water/foul drainage strategy and external levels. Any works required to existing highways will be agreed with the Local Authority and standard details will be adhered to including any S278 works.

Further detail will be included within specialist sub-contractors risk assessment and method statement.

Temporary Works/Supports

PHD1 Construction will ensure that the **stability and structural integrity** of any excavations and the building is retained at all times throughout the works and in doing this will ensure where needed, that such temporary supports are **designed** and **installed.**

Prior to commencing any civil or structural works in any area, a survey will be carried out to establish the need for temporary support works, which should also be done in conjunction with the Consultant Structural Engineer and specialist sub-contractor.

Temporary propping requirements will be designed and specified by competent person(s) to prevent any uncontrolled collapse. Design Risk Assessments and Method Statements will be provided to cover all temporary works installations.

PHD1 Construction will produce a schedule of temporary works within the construction phase plan.

All temporary works will be designed and approved by a competent person and were appropriate subject to independent checks. The installation of any temporary works and the subsequent inspection, monitoring and management will be undertaken by a nominated 'competent person' identified by PHD1 Construction.

KEY INFORMATION AND EMERGENCY CONTACT DETAILS

Commencement Date:	Currently proposed to be 14th July 2015
Duration/Completion Date:	30 months **–** January 2018.
Hours of Operation	Monday to Friday 8am to 6pm and Saturday 8am to 1pm
Initial Emergency Point of Contact:	Patrick O'Flynn – Construction Director Tel No 01925 640508

MEASURES TO CONTROL NOISE AND DUST

Dust suppression

Dust is created on the site during most stages of construction and will be managed throughout the construction phase.

Measures will be taken to minimise and control dust on site through industry standard measures, i.e. dampening down etc

Internal works – Dust will be controlled in a similar manner. The majority of dust escaping to outside locally is created from the use of waste chutes. For that reason we shall not use waste chutes, waste shall be transported in bins via access points.

Good housekeeping should be employed to reduce the amount of dust created. The principal contractor in conjunction with their sub-contractor shall ensure dust generated from site activities does not become a risk to others and in doing so shall assess the dust risk for each work package, ensure adequate controls are in place and review these controls with their contractors.

Measures will be taken to eliminate or at least minimize dust generation with consideration given to material usage, type of work equipment used and work methods applied. Were dust is unavoidable, dampening down techniques will be applied.

Noise

As part of the pre-planning process of work activities, those works, which may bring about excessive or high levels of noise will be pre-assessed, including the impact upon construction operatives, tenants within the building and neighbours in nearby premises.

The requirements described within The Noise at Work Regulations 2005 and the British Standard BS 5228 Noise and Vibration Control on Construction and Open Sites will be adhered to fully.

In brief, PHD1 Construction will limit as much as practical high noise operations and were this is unavoidable measures will be taken, such as the selection of plant and equipment or work processes,

which does not emit high noise levels or equipment which is fitted with silencing/anti-vibration equipment.

Also any noisy equipment will be sited as far away from occupied premises as possible and turned off when not in use. Noise paths will be restricted by the placement of enclosures/barriers were practical. The above measures will be considered as part of the assessment process, which will identify noisy hazards, estimate likely exposure to noise by construction operatives and any other persons likely to be affected, identify measures required to eliminate or reduce noise exposure, and make persons likely to be affected by noise aware of the risks and controls which are being taken.

Full liaison will occur with affected tenants as part of the pre-planning of construction work activities and every effort will be made to minimise the impact upon their work activities as described above and also to work in cooperation with tenants regarding any specific requirements they may have, including restricting high level noise during key times. (Consideration will also be given to works occurring outside of normal works hours, were noise levels cannot be satisfactorily reduced).
Noise monitoring will occur during potential noisy activities and were the action levels are exceeded as identified within the Noise at Work Regulations (see below) then appropriate action will be taken.;

Lower exposure action level is a daily or weekly exposure of 80db and a peak sound pressure of 135db

Upper exposure action levels is a daily or weekly exposure of 85db and a peak sound pressure of 137db

Additionally, liaison will also occur with the local authority regarding any restrictions they have and ensuring minimal impact upon neighbours.

Further key issues, which will also be considered, are;

- Ongoing **liaison** with affected persons pre-construction and throughout the construction phase
- The site will be registered with the **Considerate Constructors Scheme.**
- **Emergency work** were required must be done in full liaison with City Council representatives and any other statutory persons, i.e. emergency services and HSE. The Principal Contractor

will be expected to identify these arrangements within their construction phase health and safety plan, which must also include emergency procedures for the site.

- **Party wall works** will be done in full compliance with party wall awards and with the input of key personnel, i.e. structural engineer, party wall surveyor.
- **Scaffolding** requirements will be assessed with appropriate permits applied for by PHD1 Construction. Any scaffolding will be erected, maintained, inspected and used in accordance with the Work at Height Regulations and relevant British/European standards. Similarly, the use of mast climbers would require these same management controls.
- **Hoardings** will be erected, which will provide protection for members of the public from construction works, and which also prevent unauthorised access to the site. These hoardings should cause minimum disruption and impact to members of the public and will consider the needs of highway users, particularly the disabled.
  Hoardings will be subject to a temporary works design, in accordance with regulation 28 of CDM. PHD1 will apply for appropriate permits and licenses.
- **Skips and storage** area will be identified by the Principal Contractor and be within the site boundary/hoardings. The Principal Contractor will be expected to include within their construction phase health and safety plan, a waste management strategy, which includes methods and modes for recycling.
- **Use of access equipment** *Mobile elevated working platforms* will be utilised for some areas and PHD1 will ensure these are operated by trained and competent persons only.

Recycling/disposing of waste

A separate site waste management plan will be produced and define a waste management hierarchy of control,

- mitigate waste generated
- re-use were possible
- recycle
- dispose of waste at a suitable facility.

Waste produced during the construction process is to be cleared on a daily basis. On each floor plate of the buildings, a series of paladin bins will be deposited within easy reach of the work stations.

Contractors are to deposit waste in these bins during the day. The bins are then to be transported to the skip via the hoist.

To reduce the amount of waste for landfill, the waste is to be segregated at the waste transfer station into the following categories:

- Cat A: Hazardous waste i.e. paint tins, mastic tubes etc.
- Cat B: Metal
- Cat C: General waste / building debris

Summary Statement

The Construction Design and Management Regulations 2007 will only apply to this project upto October 2015 (Transition period), at which time it will be superseded by CDM 2015, and all appropriate controls and systems will be in place to comply with the standards of the regulations and associated guidance.

Every stage of the project will be pre risk assessed and appropriate controls applied, sub contractors will be pre vetted and will be subject to extensive pre contract requirements of information transfer and risk assessment.

A fundamental aspect of our role as principal contractor is the development of a construction phase plan, which will take account of all known risks, which have been identified at pre-construction stage by the CDM Coordinator, design team and also through our own site investigations.

Our construction phase plan will describe our arrangements and procedures for managing these key risk areas in more detail, as well as any future risk, and also the resources, including personnel, which will be applied to the scheme and which will ensure the health and safety of all those working on or affected by the project works.

PHD1 Construction has an ongoing process of monitoring health and safety standards throughout the organisation.

This is done directly on site by the site management team through regular inspections, toolbox talks etc, and also via the risk assessment process both during the completion of risk assessments and then by monitoring the effectiveness of risk control measures, which have been implemented. Site managers will also undertake regular reviews of safety on site, including any accidents or incidents

and any matters raised will be dealt with accordingly.

Health and safety is also incorporated as a fundamental aspect of the overall project review, which occurs, and this monitoring and review process is supported by our safety advisors, Rawlings Safety, Training and Consultancy Services Ltd, who will also undertake independent inspections on all sites.

PHD1 Construction will at the earliest possible stage of the project enter into dialogue with all relevant parties, including our neighbours to ensure there is effective coordination throughout all stages of construction.