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Belgrove House

Construction Management Plan

RPM Internal Review / Issue Process		
Stage	Initials	Date
Originator	NB	30 Mar 20
Peer Review	SW/CB	30 Apr 20
Final Check	NB	03 Aug 20
Issue Date	NB	07 Aug 20

File details	
File Name	2020.07.30 – Belgrove House - CMP
Revision	04 – Update to CCC &TfL/Trium comments

Distribution		
	PAL	JA/FL
	AHMM	IP
	AKTII	KA
	GE	KH/AN
	TTP	PS
	RPM	SW

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1.0 Introduction

This Construction Management Plan (CMP) has been prepared by Real PM Limited on behalf of Eelam Properties Limited ('the Applicant') in support of an application for full planning permission for the comprehensive redevelopment of the existing building at Belgrove House, Belgrove Street, London, WC1H 8AA ('the Site') within the jurisdiction of London Borough of Camden Council ('LBC').

The development proposals, designed by Allford Hall Monaghan Morris ('AHMM') Architects, (herein referred to as 'the Proposed Development') consist of the following:

'Redevelopment of Belgrove House as a part 5 part 10 storey building with an innovative double skin facade for use as office and research and laboratory floorspace for the life sciences sector incorporating public access at ground floor level, café and retail floorspace an auditorium and a new step free entrance to Kings Cross LUL station in place of the two tube boxes on Euston Road together with a terrace at sixth floor level for use by tenants, public realm enhancements to Belgrove Street, Crestfield Street and St Chad's Street, cycle storage and facilities, refuse storage and other ancillary and associated works.'

This report sets out details of the works required to carry out the demolition/enabling and construction activities involved whilst outlining their anticipated timescales and identifying the environmental impact of the works and where practicable, proposals for how these are to be mitigated.

The proposed development being undertaken relates to Belgrove House, on the south side of Euston Road, lies in the Kings Cross/St Pancras Conservation Area. It occupies the entire urban block defined by Euston Road to the north, St Chad's Street and Argyle Square to the south, Belgrove Street to the west and Crestfield Street to the east. It is an unremarkable 3 storey high brick faced building with a flat roof and a basement. The building is in use as a storage facility (and has been for many years), and there are three low quality retail units at the northern end facing Euston Road

Figure 1 – Existing Building Plot (Redline)

2.0 Site location and access

2.1 Existing Development Site

The existing building known as Belgrove House is located Kings Cross, within the London Borough of Camden, located between Euston Road to the north and Argyle Square to the south.

The site itself is located in an area of mainly mixed residential and commercial properties and has a rich history. Argyle Square immediately to the south of the site is the Bloomsbury Square closest to King's Cross. Today the Square has a small central lawn, surrounded by a pedestrian path and planted borders. The buildings surrounding the Square are formal Georgian terraced properties, echoing the grander architectural designs of some of Bloomsbury's larger squares. The majority of the terraces are now occupied by small hotels.

The site is located within the King's Cross St Pancras Conservation Area, but the building is not listed.

Figure 2 – Location plan

2.2 Local area

As highlighted in section 2.1, the site is located immediately opposite the busy rail and underground station Kings Cross on the south side of Euston Road. The existing site which is currently occupied by a 3-storey concrete framed building with a masonry façade and a single level of basement.

The island site is bounded by mainly residential and commercial properties which will provide some logistical challenges in terms of access during the demolition and construction phases, but in general terms the site is well served by vehicle access.

Euston Road to the north of the site is a two-way carriageway whose westbound carriageway provides direct access to Crestfield Street to the east and Belgrove Street to the west of the site; both of which are one-way streets heading south. To the south of the site is Argyle Square which is bounded by Argyle Street to the east and west and connected by St Chad's Street which runs east to west and intersects Belgrove and Crestfield Streets.

It is also recognised that both Crestfield, Belgrove and St. Chad's Streets are part of Camden's two-way cycle routes and as such careful vehicle traffic management will be required to be implemented.

The primary construction vehicle access routes and logistics proposals have been prepared taking the local road layouts into consideration where practicable.

Figure 3 – Local site location plan

2.3 Existing Physical Constraints

2.3.1 Key Receptors

Following a review of the local area a number of key receptors and potential constraints have been identified with respect to neighbours, businesses and other physical constraints surrounding the site.

These have been located on the local receptors plan below and where appropriate this section further details the approach regarding the constraints and the approach. In general terms the local residents, businesses and public interfaces are dealt with elsewhere in this document, the following sub-sections highlight the key receptors related directly to the existing building.

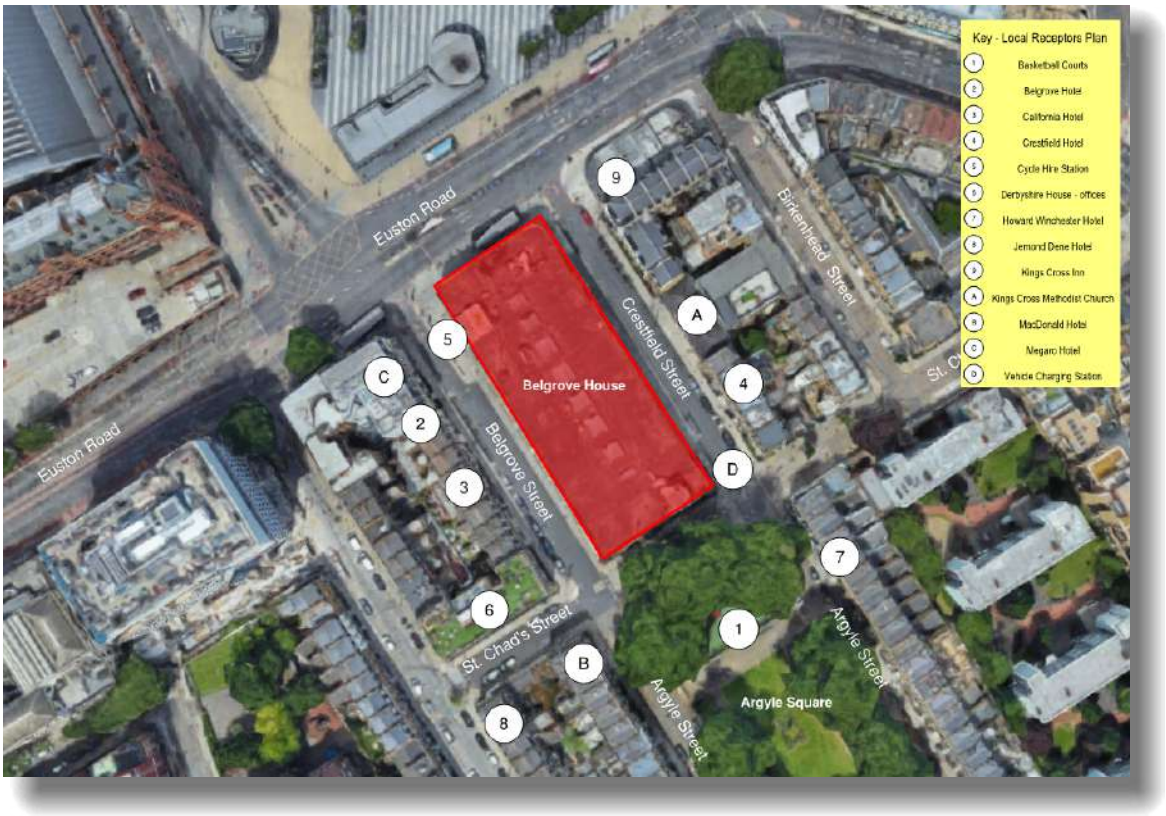


Figure 4 – Key Receptor location Plan

2.3.2 McDonalds Restaurant Retail unit

There is an existing McDonalds Restaurant situated in a retail unit to the ground floor at the junction with Euston Road and Crestfield Street that will need to be relocated as part of the redevelopment.

A series of options have been considered as part of the initial design reviews but at this stage we understand that the unit will be relocated as part of the vacant possession activities prior to works commencing and therefore we indicate this becoming vacant with the other tenants and no special measures have been employed.

2.3.3 UKPN Sub-Station

Following a review of the existing survey information and site visits, we understand the existing site is served by a UKPN sub-station which located in the basement level and accessed via Belgrove Street.

This is considered inadequate for the proposed development and therefore and new supply will be applied for through UKPN; initial thoughts suggest that can be provided from a local existing Primary Network Sub-station.

We expect that the existing sub-station will initially provide temporary builders supply during demolition and construction activities and be suitably protected in line with established UKPN protection criteria. This will then be decommissioned as part of the works to coincide with the provision of the permanent supply.

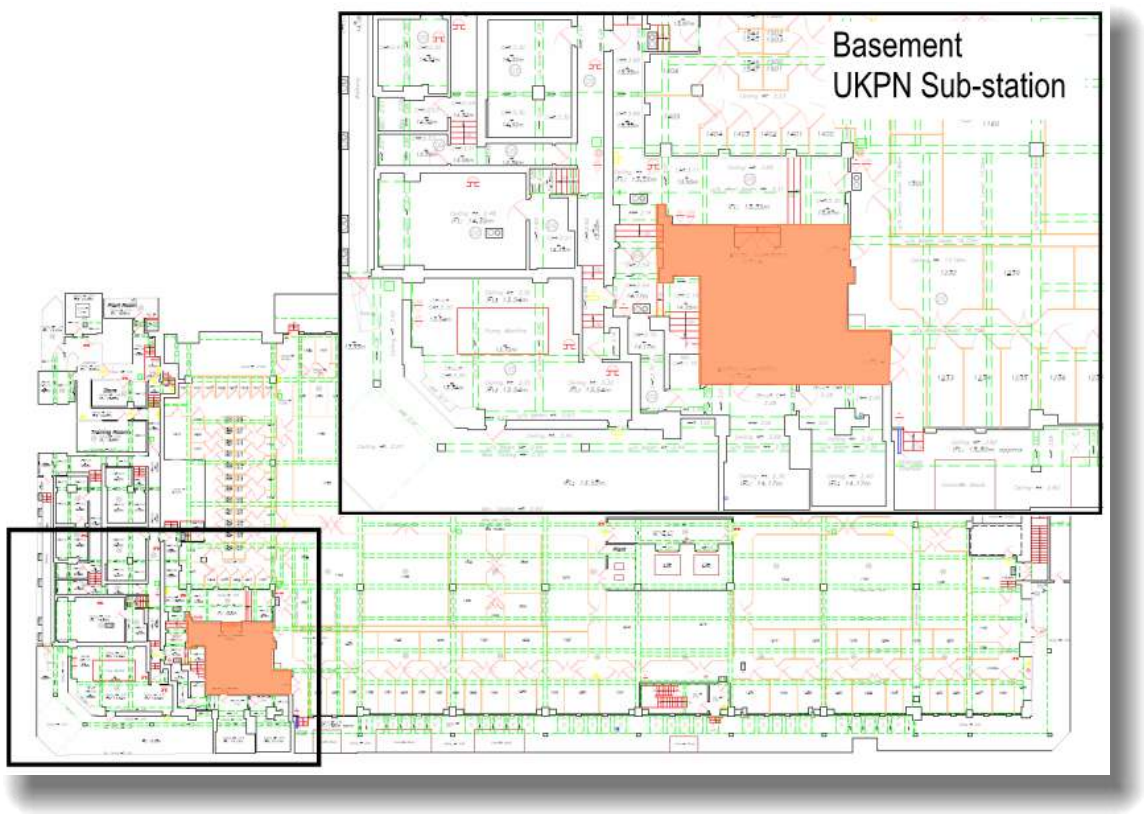


Figure 5 – Extract of UKPN plan denoting existing sub-station

2.3.4 Belgrove Street Cycle Hire station and Crestfield Street Electric Vehicle Charging Station

There is currently a 21-unit Santander cycle hire station located on the eastern pavement of Belgrove Street and electric vehicle charging point that both need to be considered as part of the logistics approach prior to demolition and construction.

Through approval with Transport for London (TfL) and Camden Council Highways we are proposing that the existing arrangement is temporarily relocated to a location to the southern end of Belgrove Street, in order to facilitate safe vehicle access around the site during the significant demolition and construction activities taking place at the site perimeter and the location of the temporary welfare and accommodation arrangements.

The working assumption at this stage is that the through further discussion with TfL and LBC the temporary location could become the final location.

If not retained in temporary location at the appropriate stage in the construction process the existing hire station will be relocated back to its position on Belgrove Street.

The electric vehicle charging bay will need to be relocated to its permanent location, which at this stage is likely to be Argyle Square.

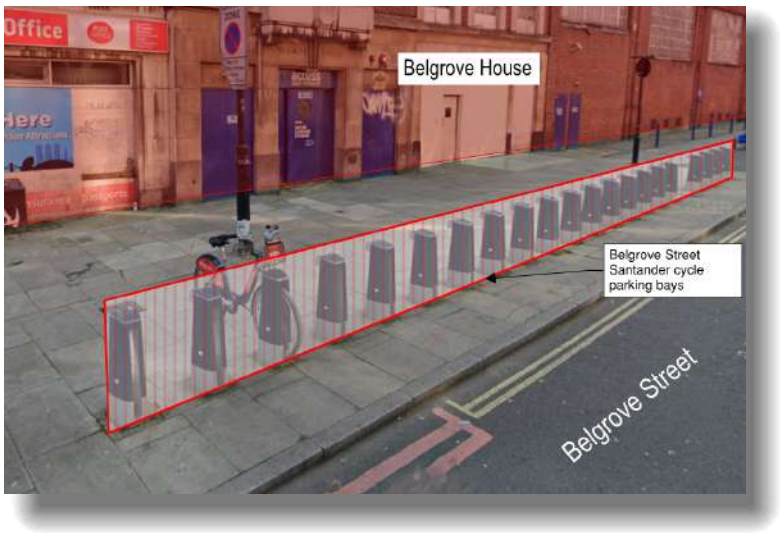


Figure 6 – Cycle Parking bay to Belgrove Street

Figure 7 – Electric charging bay to Crestfield Street

2.3.5 London Underground Interface

As part of the redevelopment of Belgrove House the entrances on the southern side of Euston Road are to be combined into a single step free entrance that is proposed to be located on the north west corner of the development at ground floor level.

There are currently two separate pedestrian entrance stairs which are accessed from the southern pavement of Euston Road to the east and west of Belgrove Street. As indicated in the figure below they provide pedestrian link (highlighted in blue) to the underpass running below the Euston Road.

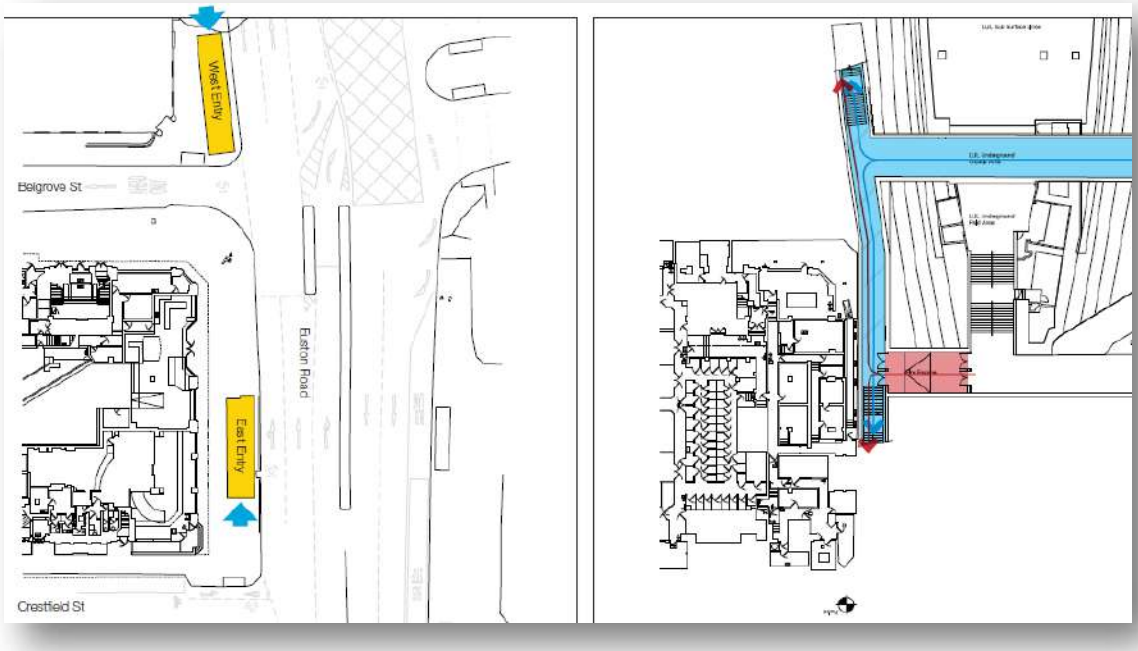


Figure 8 – Existing London Underground - Ground Floor and Basement plans

Negotiations are underway with London Underground Limited (LUL) and Transport for London (TfL) to agree the details of the pedestrian and associated fire escape link and this document includes programme details for the construction of the link that have been presented to date.

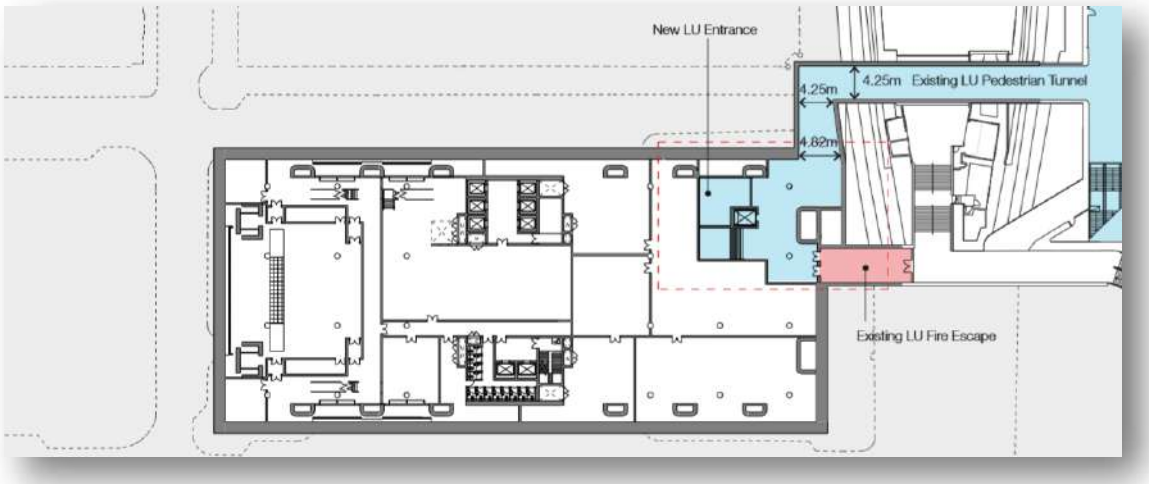


Figure 9 – Proposed London Underground link

The plan above illustrates the proposed step free access to the southern underground ticket hall.

2.3.6 London Underground Tunnel Interfaces and Approvals

The west and eastbound Piccadilly line and Kings Cross Underground entrance tunnels are located to the north of the development, with the Piccadilly Line tunnel running directly beneath the north west corner of the site.

To ensure the location of these London Underground assets are respected and protected throughout the demolition and construction activities, design works are currently ongoing to develop options for a structural solution and installation methodology that respects the line, level and condition of the existing LUL tunnels and associated exclusion zones which will be reviewed with LUL and TfL to ensure the necessary approvals are in place prior to works commencing.

As part of the design, a review of the potential movement impacts will be assessed through a ground movement assessment and approval sought from London Underground Limited (LUL) to implement an electronic real time movement and vibration monitoring and reporting regime for the duration of the demolition works that would be extended through the construction period into post completion monitoring.

Figure 12 – Extract of site constraint plan indicating location of Piccadilly Line tunnels and Kings Cross station entrance tunnels

- DENOTES KINGS CROSS ENTRANCE TUNNEL - BASED ON ARUP DRAWING

- DENOTES PICADILLY LINE TUNNEL

Typical scope of works / services of the Monitoring Contractor will comprise:

- Design, supply, installation, commissioning, calibration, testing, operation, cleaning,
- Maintenance, decommissioning and removal of monitoring infrastructure (in its
- entirety).
- Real time monitoring is required within the Crossrail tunnels.
- The analysis, interpretation and factual reporting of the results.
- All the monitoring data is to be held in a single web access database.
- Liaison with LUL, the Client, the Contractor and other interested parties will be required as necessary.

- Submission of documentation.
- Full equipment maintenance.
- Liaison with LUL as required to gain agreement for installation of the monitoring equipment (method statements, risk assessment, fixing details etc.).
- Attend monitoring meetings.
- Produce Factual Background Monitoring Reports, Factual Monitoring Reports and
- Final Monitoring Reports.
- Comply with the LUL standard G0023 Infrastructure protection – special conditions for outside parties working on or near the railway and associated standards.

The monitoring regime incorporate a system of trigger levels; green, amber, red and black as follows;

- The 'green' trigger level would represent an acceptable amount of movement which would usually exceed the anticipated movement but provide a warning of movement progression. The green trigger level will be established using the anticipated ground movements from the development as well as the realistic thermal/seasonal variant.
- The 'Amber' levels would require a review of the construction activities and proposals necessary to prevent further movement. This would entail activating the Monitoring Action Plan (MAP).
- The 'red' trigger level would require construction activities to be stopped in the vicinity of the asset and measures undertaken to stop any movement causing possible damage to the asset. This would entail activating the Monitoring Action Plan (MAP)
- The 'black' trigger level would be associated with continual and increasing movements after a 'red' trigger level is breached and requires all construction activities to be stopped until the cause of the trigger breach has been satisfactorily resolved. It may also be necessary to stop LUL trains

2.4 Site Access and Egress

The primary construction access and egress route to the site for demolition and construction HGV's has been considered carefully to reduce the impact of vehicle movements on the local community and road network alike.

Following review of the physical location of access nodes to the site, potential routes during the demolition and construction stage have been identified.

A route bringing vehicles in from the south via Argyle Street from Gray's Inn Road was investigated but this was discounted due to the one-way restrictions imposed and therefore only provided an exit to the south of the square.

Following this assessment and review of the local traffic movements and associated survey data, we have identified vehicle access and egress routes from the north and south to ensure efficient links back to the Transport for London Road Network (TLRN).

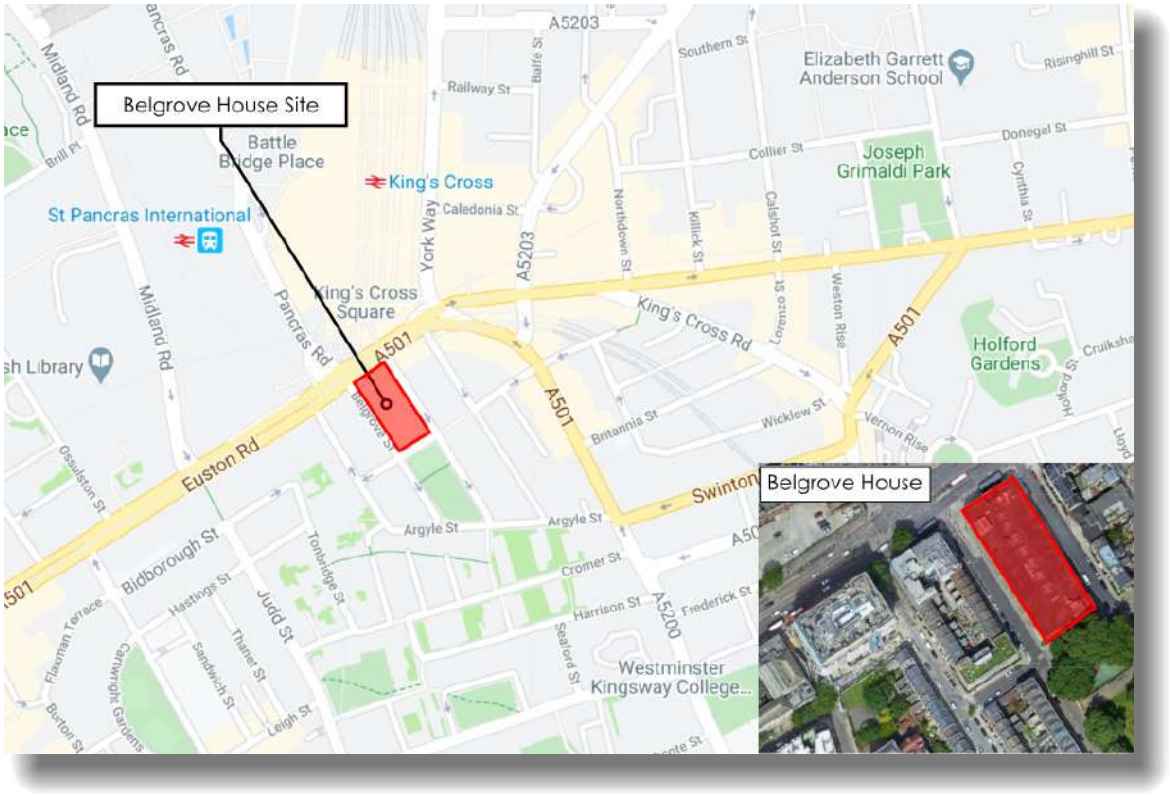


Figure 10 – Wider site location plan

2.4.1 Congestion Charging and Ultra Low Emission Zones

The development lies within both the London Congestion Charging and Ultra Low Emission Zones, situated to the northern boundary of the zones at its interface with Euston Road therefore construction vehicles delivering to and from the site will require to comply with their requirements.

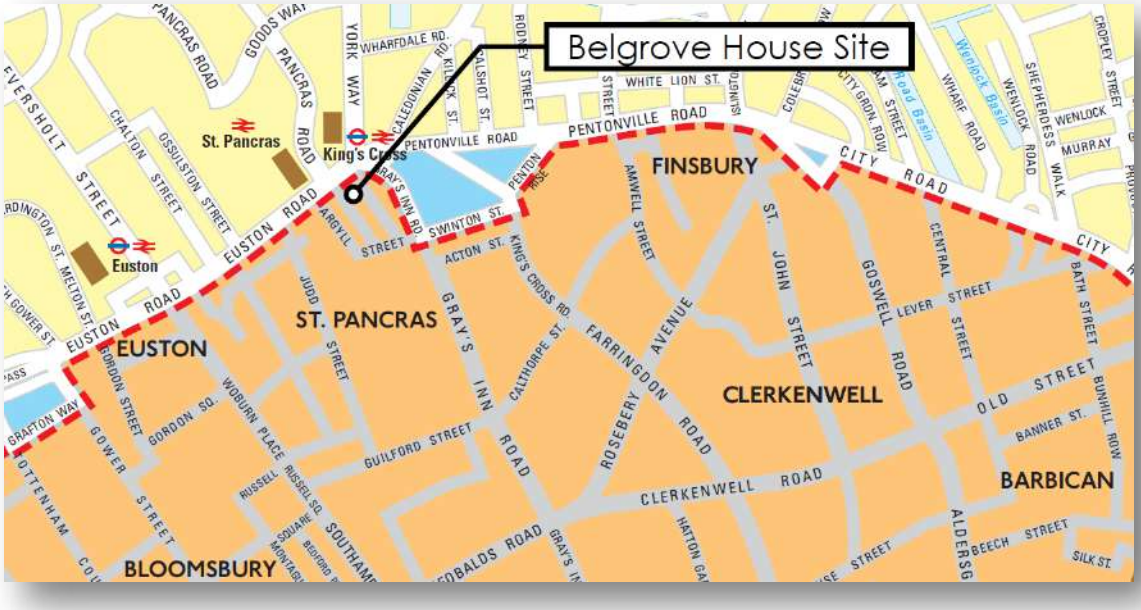


Figure 10 – Site location in relation to the TfL Congestion Charging Zone

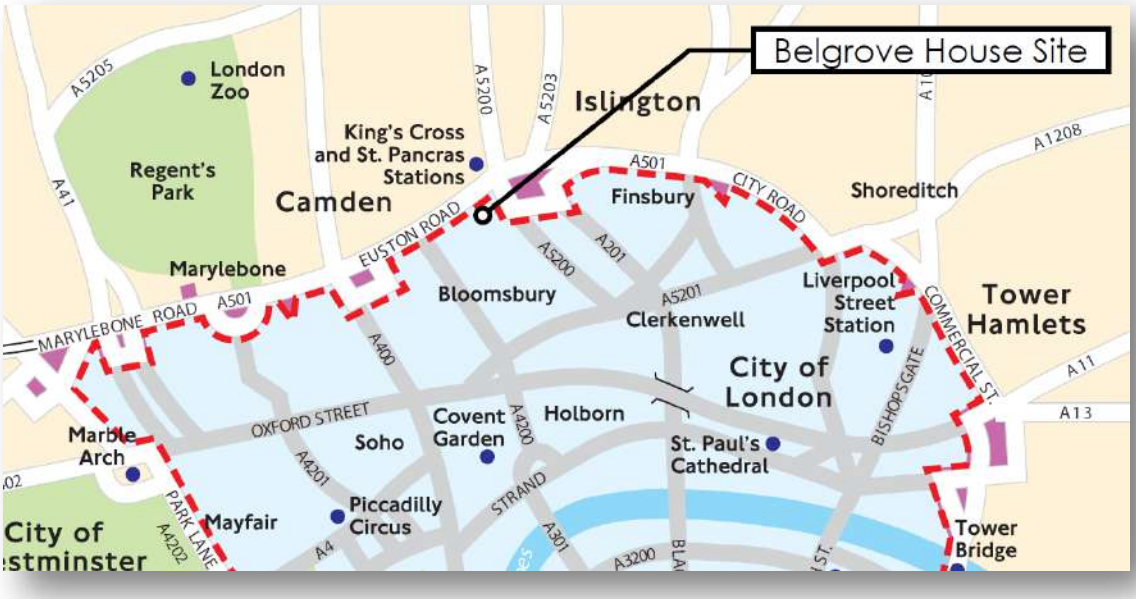


Figure 11 – Site location in relation to the Ultra-Low Emission Zone

2.4.2 TfL Primary Road Network (TLRN)

The development is well located in relation to the TLRN, with vehicle access possible from the north links to the road network as noted below and within Appendix 1.0.

Figure 12 – Site location in relation to the TfL Primary Road Network (TLRN)

2.4.3 General Access

The extract below from the logistics plan within Section 5.0 indicates the overall location of the site, existing buildings together with construction vehicle access provided from Crestfield to the east, Belgrove Street to the west and St Chad's Street to the south. Sections 3.0 and 5.0 develop these details further and provide an overview of the proposed construction logistics.

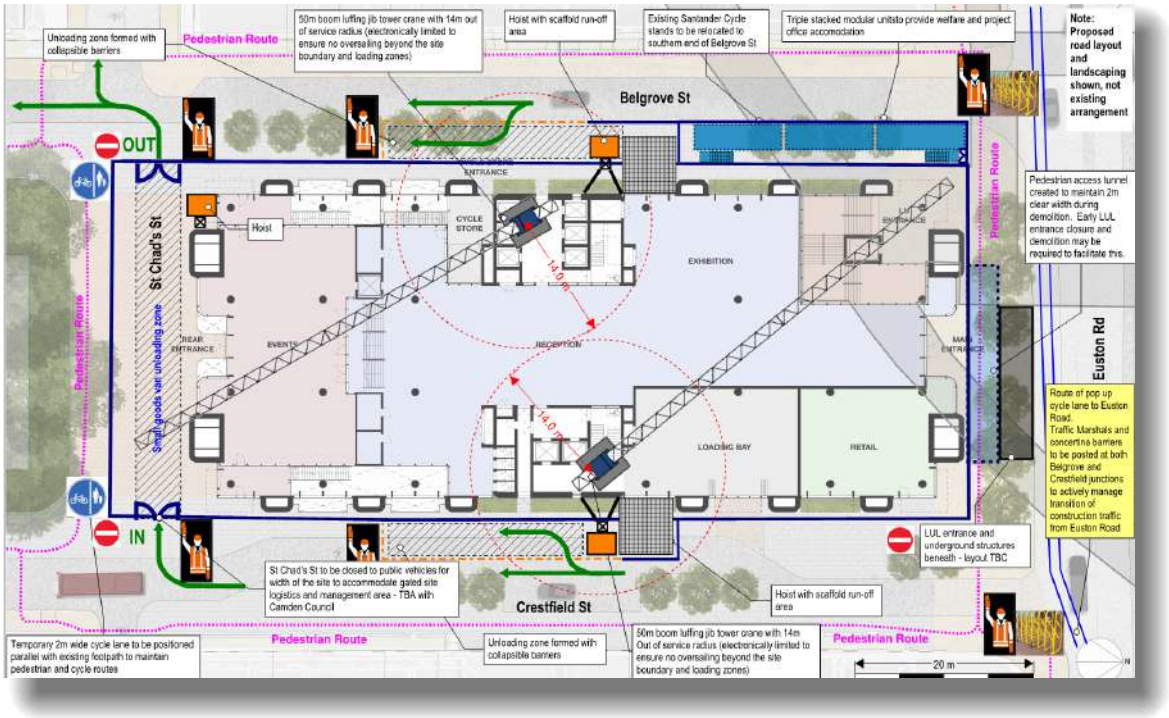


Figure 13 – Plan indicating construction vehicle access/egress locations

2.4.4 Pedestrian and Cyclist Access

It is acknowledged that construction traffic poses particular risks with respect to pedestrian and cyclist safety and therefore their access routes around the site will be maintained and managed throughout the project.

With the perimeter hoardings being located broadly at the proposed kerb edge to the pavements to Belgrove Street and Crestfield Place it is proposed, through consultation with LBC Highways Department, to close the pavements in these locations for the majority of the programme.

Space Syntax have carried out pedestrian and cyclist surveys to the surrounding highway and specifically those on the curtilage of the site, which suggest that the majority of the pedestrians use the opposite footpaths of Belgrove and Crestfield Street to access Argyle Square to the north.

To facilitate safe pedestrian access during the works it is proposed that temporary signage will be installed to Belgrove Street and Crestfield Street to facilitate the closure of the west and east perimeters of the site to ensure safe passage of pedestrians and cyclists.

As detailed elsewhere in the document, the junction of Euston Road with Crestfield and Belgrove Street requires careful attention and therefore special measures with regard to vehicle access are to be implemented.

As part of this strategy a pedestrian routing management plan would be prepared that involves the implementation of the temporary signage to ensure regular users of the surrounding footways are fully aware of the new arrangements.

2.4.5 Construction Vehicle Routing

Due to the restricted urban nature of the site and local road arrangements access from the Euston Road to the north is not proposed, with the development occupying an island there is good access available from the 3 streets bounding the site and these are the focus for the routeing to be used for construction vehicle access and egress.

The primary access and egress routes detailed below identify the optimum route for not only HGV's, but all other vehicle types arriving and leaving the site.

- Access for HGV traffic (shown green dotted below).
  - This route directs all HGV traffic approaching from the west bound carriageway of Pentonville Road A501 which forms part of the TfL TLRN.
  - From Pentonville Road A501 progress west
  - Bear left then right into Swinton Street
  - Join Gray's Inn Road with right turn and merge into Euston Road west
  - Left into Crestfield Street *(Marshalled entry from Euston Road)*
  - Progress along Crestfield Street and arrive at vehicle pit lane
  - (Arriving traffic will be marshal controlled by Main Contractor under a Temporary Traffic Order or similar highways access licence).

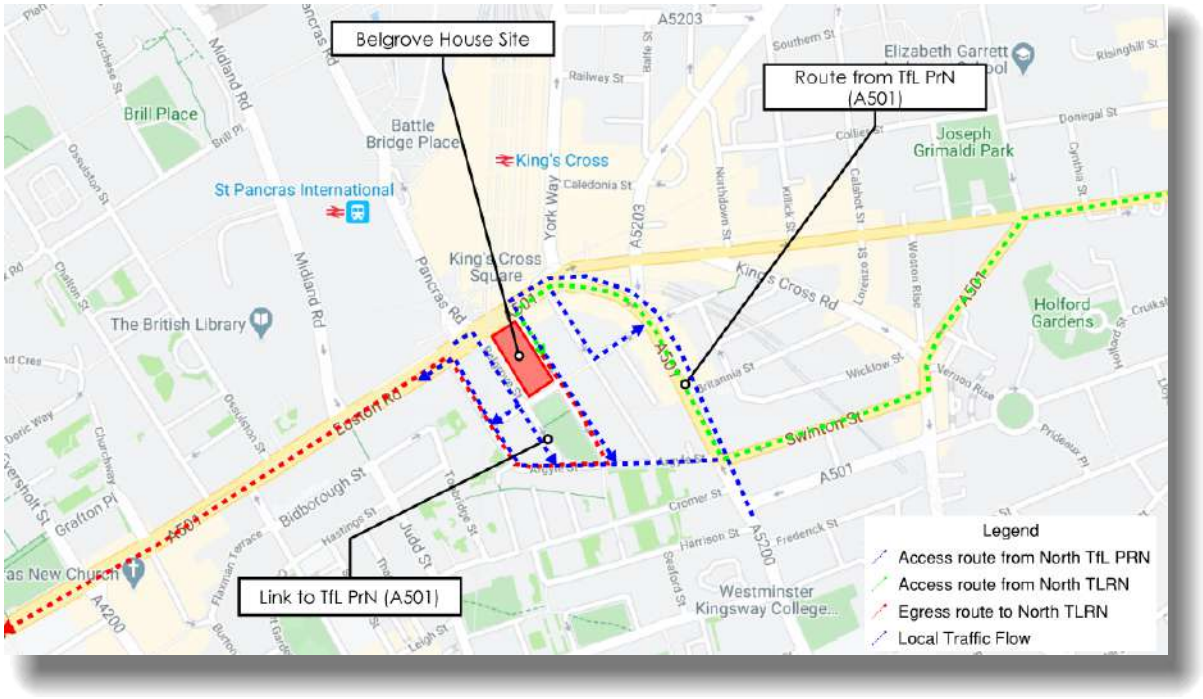


Figure 12 – HGV Construction access and egress routes

- Egress for HGV traffic (shown red dotted above).
  - This route directs all HGV traffic leaving the site to the west bound carriageway of A501 Euston Road, which forms part of the TfL TLRN.
  - Leave pit lane on Crestfield Street;
  - Continue south into Argyle Square
  - Left into Argyle Street
  - Left onto Euston Road *(Marshalled entry onto Euston Rd)*

As indicated in the following sections vehicles accessing the site will be processed on both Belgrove and Crestfield Street, the above routing focusses on the route to and from Crestfield Street with the route from Belgrove covering the same route.

3.1 Logistics Principles

The logistics plans within this document has been developed using the constraints as guiding principles and are intended to illustrate access to and from the site during the sub/super-structure and envelope and fit out phases of the project.

The logistics plan included within the document details the vehicle access and egress locations during the build and identify the tower crane locations and illustrate the pick-up locations necessary for the construction of the basement and super-structures.

3.2 Logistics Outline Proposals

Details of the logistics arrangements are illustrated within Section 5.0 of this document with the following indicating the proposed outline of how the project will be established.

The following sections cover the specifics around safe construction vehicle access to Crestfield Street, Belgrove Street and St Chad's Street from Euston Road.

3.2.1 Euston Road

The Euston Road pedestrian walkway to the north the of the development will remain open to the public in both directions, at the interface with the underground entrance this will be facilitated through the use of pedestrian walkway that spans the current footway and scaffold installed above. During the enabling phase of the project a solid hoarding will be erected to secure the site and the external demolition scaffold which will reduce the existing width by approximately 2m.

As noted in Section 2.0 the junctions of Crestfield Street and Belgrove Street will be used as the main access from Euston Road to the site have been identified as high risk and as such require special consideration.

All heavy goods vehicles undertaking trips to and from the site will be physically marshalled off Euston Road with concertina barriers deployed either side of the junction and extended to temporarily hold pedestrians and cyclists using the west bound lane of the temporary cycle lane. To ensure a smooth transition to the site, notification of arriving vehicles will be achieved using the vehicle logging and booking system with Site Access Marshals deployed at the junctions with Crestfield Street and Belgrove for vehicles arriving at the respective streets and Argyle Street for vehicles leaving the site and re-joining Euston Road north.

As noted elsewhere in this document, compliance with the highest training levels of training and compliance with the latest road safety schemes and initiatives will be imposed in the successful contractor.

The approach proposed to Euston Road will also enable the interface with temporary cycle lane to Euston Road to be effectively managed, particularly at morning and evening peak times.

3.2.2 Crestfield Street

This will be the location for the first of the two vehicle delivery zones for the project and provide pick up location or the proposed tower cranes.

Vehicle access to the building will take place using a temporary pit lane located to the west kerb line adjacent to the existing building. The pit lane will be sized to allow two parked HGV's to be unloaded using the tower crane positioned within the site.

As noted previously this will require the relocation of the existing electric vehicle charging point to the north and vehicle loading bays at the junction with Euston Road which will need to be temporarily relocated to the opposite side of the street.

3.2.3 Belgrove Street

This will be the location for the second of the two primary vehicle delivery zones for the project and provide pick up location for the proposed tower cranes.

Vehicle access to the building will take place using a temporary pit lane located to the east kerb line adjacent to the existing building. The pit lane will be sized to allow two parked HGV's to be unloaded using the tower crane positioned within the site.

As noted previously this will require the temporary relocation of the existing cycle hire station, which at this stage we understand is subject to agreement with TfL but likely to its permanent location to the south of the street.

The space provided by the removal of the cycle stands will be used to locate triple stacked modular cabins which will house the main and sub-contractors offices, toilet and canteen facilities accessed

3.2.4 St Chad's Street

As part of the proposals, the section of St. Chad's Street between Crestfield and Belgrove Street will be closed to public motor vehicles, road users other than pedestrians and cyclists wishing to travel from east to west will be directed to use Argyle Square and Argyle Street to gain access back to Euston Road. The space provided by the closure of this section of the street will be used to locate off street vehicle unloading location smaller 'white van type deliveries' that will be required through the project.

Due to the extent of the canopies to the trees located within Argyle Square it is not envisaged that the tower crane will pick up from this location, instead materials will be distributed from this location via the hoist positioned on the south west corner.

To ensure pedestrian and cycle route along St Chad's Street is maintained, the east-west hoarding adjacent to Argyle Square will be located to maintain the existing footpath and provide a 2m cycle lane.

It should be noted that, through prior approval from Camden Council, the existing motorcycle parking bay and 2 vehicle parking bays would need to be temporarily suspended to achieve this.

3.3 Logistics Management and Neighbourhood Liaison Manager

The successful contractor shall provide a nominated directly employed member of staff to act as Logistics and Neighbourhood Liaison Relationship Manager. This individual will be responsible for managing and co-ordinating the material access / egress to the site through the operation of a vehicle / material booking in system. It will be their responsibility to manage and update the contractors Construction Traffic Management Plan in conjunction with the Project Construction Phase Health and Safety Plan. Both documents will be reviewed, updated and distributed as necessary.

As part of the role, early contact will be made with key neighbours, particularly with the management team of adjacent Derbyshire House Offices, Kings Cross Methodist Church and the various independent Hotels and other adjoining properties, to ensure regular contact is maintained throughout the demolition and construction process. This will allow the site team to log any complaints received by the neighbours or any other affected third parties. Responses to those complaints can then be managed. To facilitate this, a Freephone contact number will be displayed on the external hoarding.

The cleanliness of the site boundary will be maintained. The areas adjoining and used for access to cross the public highway will be kept clean and free from obstructions. Where there is a need to run cables, hose or any other potential hazard for the users of the footway, suitable ramping together with appropriate signage must be employed.

These external areas will be the responsibility of the banksmen and outside of their role of policing deliveries to and from the site they will be on hand to offer help and assistance to vulnerable users of the footway.

With the exception of vehicles unloaded by tower crane, deliveries outside of the site hoardings will be 'by exception'. All other deliveries will take place within the confines of the site and not off the highway. All deliveries crossing the footway and entering the site will be managed into the site using trained banksmen who will maintain the flow of the footway, particularly during peak times. Suitable well maintained 'Chapter 8' barriers will be used to segregate the public from construction traffic movements wherever necessary.

3.4 Condition and Party Wall Surveys

As soon as the Contractor is appointed a series of photographic condition surveys will be carried out to the surrounding area during the lead in period before the start on site date.

Adjoining properties will be surveyed but it is not envisaged that other than engagement with LUL and TfL in relation to the Underground Entrance works, any Party wall awards need to be entered into.

Surveys will take place to the immediate highway including local access routes and adjoining properties where appropriate.

3.5 Site Security, Access & Traffic Management

Where appropriate, external CCTV cameras may be located around the site perimeter. During working hours entrances and exits will be manned by security personnel throughout the project period. Energy efficient, sympathetically located lighting will also be provided to the hoarding to enhance security.

All staff and visitors to the site will use an electronic system to access / exit from the site.
The site is well served by local public transport bus links on Euston Road and the following nearby rail connections are available;

- Kings Cross and St. Pancras Station (Main Line, London Underground Northern, Piccadilly and Victoria Lines) a 1-minute walk.
- Euston Station (Main Line, London Underground Central and Jubilee Lines) a 11-minute walk.

There will be **no parking** for staff or workforce construction vehicles on site and staff and operatives will be encouraged to employ active methods of travel to the site.

Any deliveries not booked into this system or arriving outside the permitted working hours will not be permitted onto site and will be turned away. Waiting vehicles in the local residential streets will not be permitted.

3.6 Delivery / Vehicle Management

3.6.1 General Vehicle Movements

In order to minimise the impact the increase on local construction traffic will have on the local area; all vehicle movements both to and from the site will be managed and monitored by the Logistics Manager who will ensure vehicles do not, other than in the defined pit lanes, wait on Belgrove Street, Crestfield Street, St Chad's Street, Argyle Street or other local highways, at any time.

All vehicle movements to and from the site will be subject to a delivery booking system managed by the contractor's Logistics and Neighbour Liaison Manager and this system will incorporate any special events for the neighbours. The system will also ensure that material deliveries are rationalised to reduce vehicle movements to the site generally. To ensure bottle necks and waiting vehicles are avoided a system will be implemented to ensure that each delivery calls into the site.

The appointed Contractor must have a proven track record for developments for this nature and operate an online booking in system for ALL deliveries and material removal from the site.

A detailed heavy goods vehicle analysis has been undertaken and programmes to support this can be found within the Section 5.0 of this report. Based upon the resource loading of the programme, we expect peak vehicle numbers during the basement retention excavation a to reach 75 for a limited period of time with this dropping to an average of 19 per day.

One vehicle movement relating to a single vehicle entering and existing the site via the previously noted primary HGV routes.

To ensure that all vehicles leaving the site are suitably cleaned at the key demolition and sub-structure stages of the programme, a dedicated logistics team will be in place to wash down vehicles prior to re-entry to the highway. This team will use jet-wash lances at a specific 'wash down area' to prepare the vehicles before they enter the highway together with regular road sweeper visits to sweep and wash the primary egress route local to the site.

3.6.2 General Vehicle Movements

The appointed contractor must have a proven track record for developments for this nature and operate an online booking in system for ALL deliveries and material removal from the site.

Contractors working on the development will be required to Silver or Gold members of TfL FORS (Freight Operator Recognition Scheme), participate in CLOCS (Construction Logistics and Community Safety) schemes and ensure compliance with Euro 6/VI vehicle emission standards.

In addition to the requirements of FORS and CLOCS schemes, contractors must operate DVS (Direct Vision Standard) to a minimum of three stars.

In conjunction with these initiatives, construction vehicles should be fitted with cycle specific safety equipment, Fresnel lenses, side scan equipment which results in an audible beep in the driver's cab when a cyclist is on the left inside space. Under-run guards are also required to prevent cyclists from coming into contact with lorry wheels. Vehicles must also carry signs to warn cyclists and pedestrians to help reduce the risk of collisions on the capital's road.

To prevent mud, dust and waste being deposited on the highway the contractor shall ensure that all vehicles leaving the site are suitably cleaned and watered down as necessary. A logistics team will be in place to wash down vehicles prior to re-entry to the highway. The logistics team will use jet-wash lances at a specific 'wash down area' to prepare the vehicles before they enter the highway together

3.7 Existing Incoming Services

Other than the electrical sub-stations noted specific details of the existing site services are not known at this stage, however, prior to the demolition works commencing existing statutory services will be isolated and arrangements in place for them to be relocated to suit the new construction.

4.0 Details of the Works

The Belgrove House site comprises ground plus 9 storeys with 2 basement levels fronting Euston Road and 4 storeys fronting Argyle Square.

Outline Demolition and Construction Sequence

- **Vacant possession**

While not yet determined, for programme purposes we are assuming a notional Vacant Possession date of 04th January 2021.

- **Site Set Up and Asbestos Removal**

Initial activities will comprise Site Set Up (Hoardings, early welfares and offices and decommissioning). In parallel with the Site Set Up, the asbestos process kicks off with the R&D Survey.

- **Soft Strip and Demolition**

Following the asbestos removal and completion of the encapsulated scaffold, demolition can start.

Demolition will be carried out from top down using plant lifted onto the roof slab (subject to loading capacity checks; and will progressively be undertaken down to ground floor level. Roof mounted plant will be removed during the initial crane lift where possible.

When the demolition is completed up to GF, the works for the secant wall can start. These works have been planned to be carried out from the GF slab.

Once the horizontal loads have been transferred to the secant wall through the king posts, the demolition below ground can be carried out.

- **Foundations and Substructure [RC - Excluding Core]**

During the second half of the excavation process, the works to form the new raft slab can commence. And once a sufficient amount of raft slab has been poured, the basement box (lining walls and basement slabs) kicks off.

Once the basement box is complete, the horizontal loads are transferred to the basement slabs/walls and the temporary props can be removed.

During the basement excavation works the interface with the Kings Cross Underground entrance will be progressing and the link between the new basement and existing pedestrian tunnels made. The precise methodology of these activities is subject to ongoing discussions with Transport for London (Tf) and London Underground (LUL).

- **Superstructure**

This is based on a high quality precast concrete frame with two reinforced concrete cores located to the east and west of the floor plates. Construction programme and methodology currently assumes a slip formed core.

The following sequence is proposed for the construction of the main frame:

Each floor is split into two halves that run in parallel. The overlapping starts when the first activity of Precast columns installation is complete in the first half, and we start with this activity in the second half. This construction sequence is driven by the hook time with a maximum of 2 “craned activities” running at the same time.

The starting point of the following level is driven by the completion of the first half of the floor below.

- **Envelope**

The installation innovative envelope initially comprising the precast elements is planned to start by levels once the superstructure has been completed up to Level 04 slab. Once the precast elements of the envelope have been installed up to level 9, this will allow the installation of the internal layers of the façade to commence.

- **Fit-Out – Laboratory Levels 01 to 03 – By Specialist Contractor**

We have assumed that the fit out to these levels will be carried out by a specialist contractor and therefore work will complete to a shell and core specification.

- **Fit-Out – Office Levels 01 to 09 - Cat A**

Once the cladding is installed to Level 01, the fit out on these levels starts.

- **Fit Out – Risers, Lifts & Core Areas**

The fit out works on the core are planned to be carried out “separately” from the office works. As the core is built following the main structure, the office areas are ready for fit out earlier than the core areas. The fit-out works are planned to start once the core is waterproofed.

Risers and lift shafts need to be formed in the core by levels. Following the shafts formation, the risers and lifts installation can start.

- **Plant Rooms / Areas**

There are two plant room areas in the building. One is located on the basement levels and the other at roof level. Due to the core being built after the main structure, the starting point for the main works on the basement's plant room area have been linked to the core being completed to Level 05. The works for the upper level plant commence once Level 10 roof slab and associated upstands are complete and waterproofed.

Final Clear Commissioning Period and Practical Completion

16 weeks have been allowed for commissioning following Power On. 8 weeks have been allowed for final completions once all the fit-out works have been completed.

4.2 Site Set Up and Welfare Facilities

Immediately following vacant possession and to allow the initial works to commence, a fully decorated and suitably illuminated 2.4m hoarding will be provided to the site boundary; this will run from the around the Euston Road , down Belgrove Street and across the junction with St. Chad's Street. This will require an application to LBC Highways Dept to close the section of road. The hoarding will extend to the boundary with Argyle Square and return north up Crestfield Street and join Euston Road. Vehicle access gates will be provided at the east and western faces of the hoarding across St Chad's Street to provide construction vehicle access with the combined pedestrian footpath and cycle route maintained along St. Chads Street between Crestfield and Belgrove Street.

With the exception of the area to St Chad's Street noted above and the interface with the underground entrance on Euston Road, where an access width of 2m will be provided; the line of the hoarding will generally follow the site land registry and stopping up boundary line.

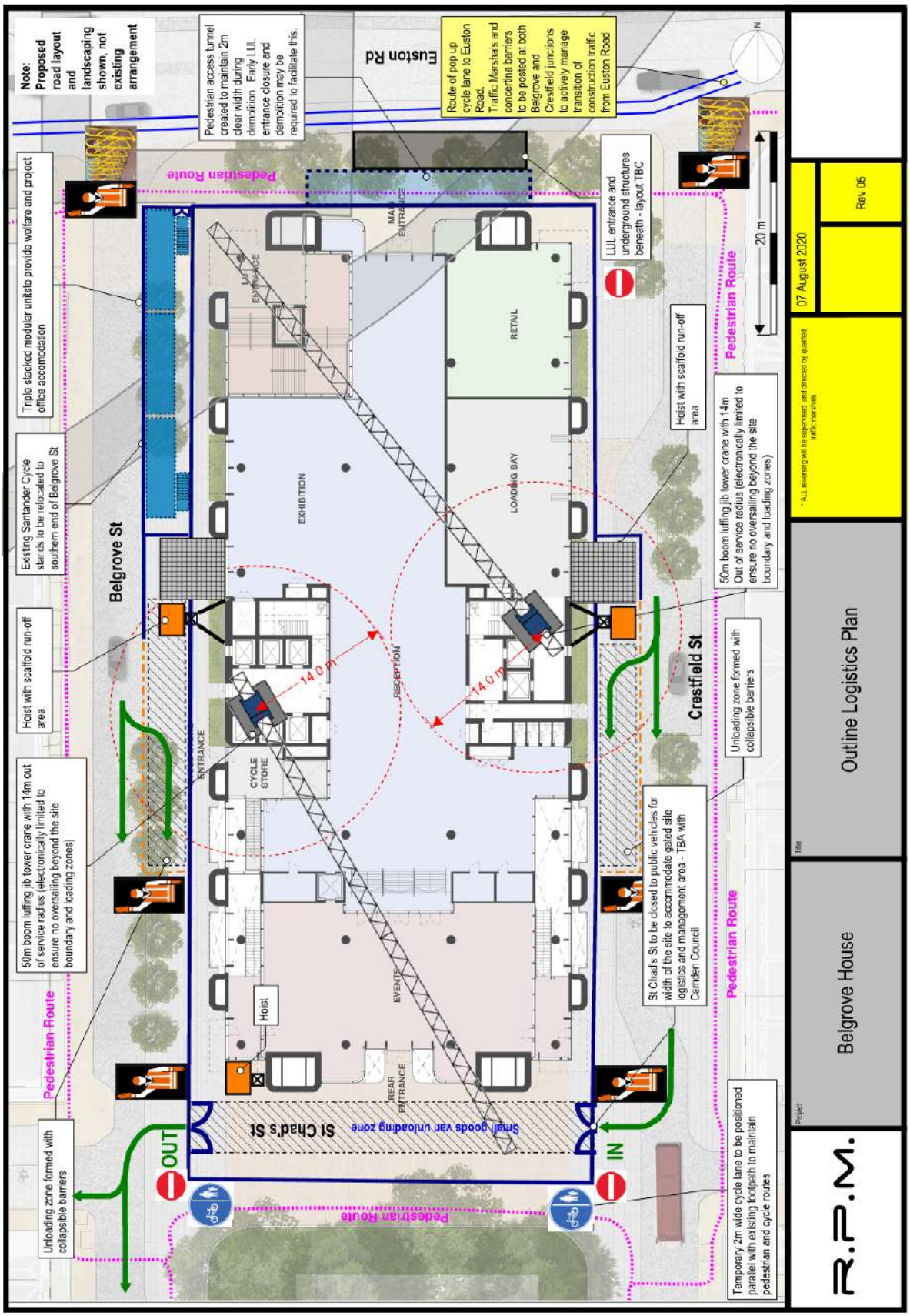
The initial location for the project welfare and accommodation will be within during the site demolition, with the main project welfare and accommodation to be provided on Belgrove Street as the development progresses. As noted previously this will require the early relocation of the cycle stand to the north of the Street.

The hoardings will be lit with energy efficient LED lighting and the access points illuminated so to minimise visual intrusion and light spillage/ pollution at the nearby properties but will comply with regulations to ensure safe passage around the perimeter. The hoarding is to include (where appropriate) public viewing panels that allow children as well and adults to observe operations and a Freephone contact number to the Neighbourhood Liaison Manager.

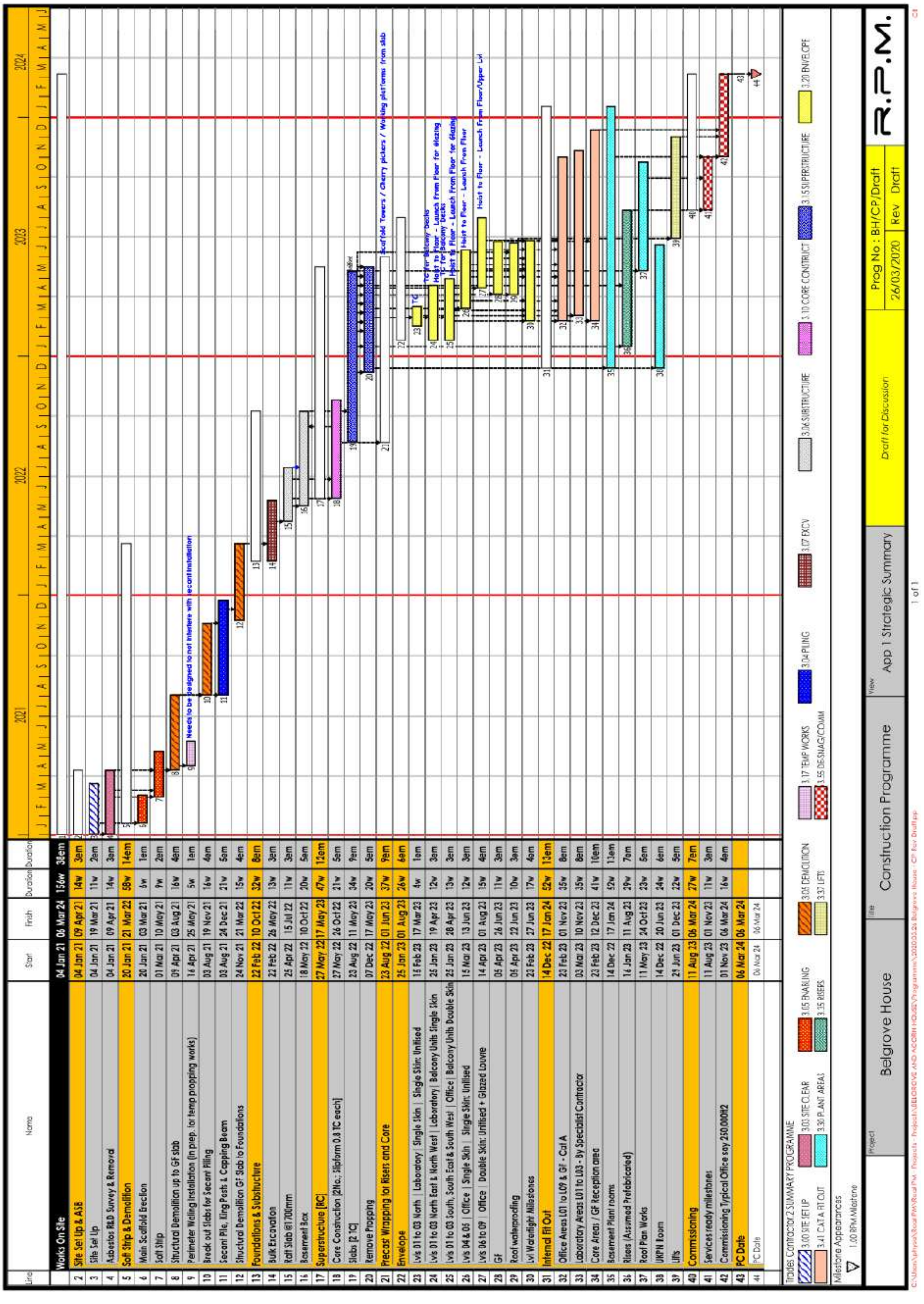
The site hoarding line will remain in place throughout the project and in the main will only be removed as the external finishing works require it, in particular the interface with the public realm upgrades to Belgrove and Crestfield Streets. As the façade and external works are completed, the interface with hoardings will be locally sequentially relocated.

Finite details of progressive hoarding moves will be provided within the contractors detailed logistics and phasing plans as part of the Construction Phase Health and Safety Plan.

5.0 Outline Logistics Plan

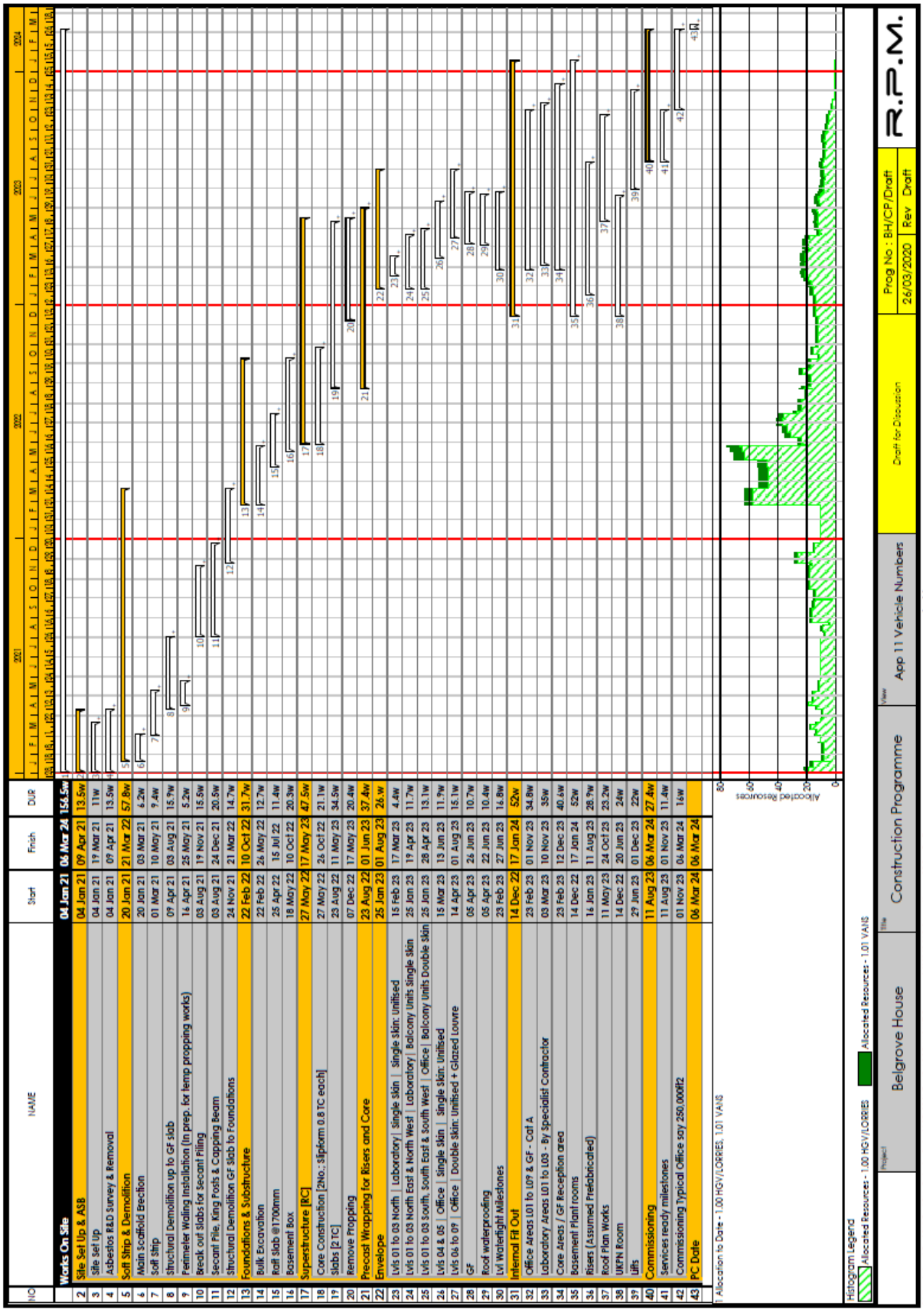

Note: Proposed road layout and landscaping shown, not existing arrangement
Pedestrian access tunnel created to maintain 2m clear width during demolition. Early LUL entrance closure and demolition may be required to facilitate this.
Euston Rd
Route of pop up cycle lane to Euston Road. Traffic Marshals and concertina barriers to be posted at both Belgrove and Cresfield junctions to actively manage transiton of construction traffic from Euston Road
Triple stacked modular units to provide welfare and project office accomodation
Existing Santander Cycle stands to be relocated to southern end of Belgrove St
Hoist with scaffold run-off area
50m boom luffing jib tower crane with 14m out of service radius (electronically limited to ensure no oversailing beyond the site boundary and loading zones)
Unloading zone formed with collapsible barriers
Belgrove St
Pedestrian Route
MAIN ENTRANCE
LUL ENTRANCE
EXHIBITION
RETAIL
LOADING BAY
RECEPTION
ENTRANCE
CYCLE STORE
EVENTS
REAR ENTRANCE
Hoist
14.0 m
LUL entrance and underground structures beneath - layout TBC
Hoist with scaffold run-off area
50m boom luffing jib tower crane with 14m Out of service radius (electronically limited to ensure no oversailing beyond the site boundary and loading zones)
Pedestrian Route
20 m
Crestfield St
Unloading zone formed with collapsible barriers
St Chad's St to be closed to public vehicles for width of the site to accommodate gated site logistics and management area - TBA with Camden Council
Pedestrian Route
St Chad's St
Small goods van unloading zone
OUT
IN
Pedestrian Route
Temporary 2m wide cycle lane to be positioned parallel with existing footpath to maintain pedestrian and cycle routes
N
* ALL reversing will be supervised and directed by qualified traffic marshals
07 August 2020
Rev 06
Project
Belgrove House
Title
Outline Logistics Plan
R.P.M.

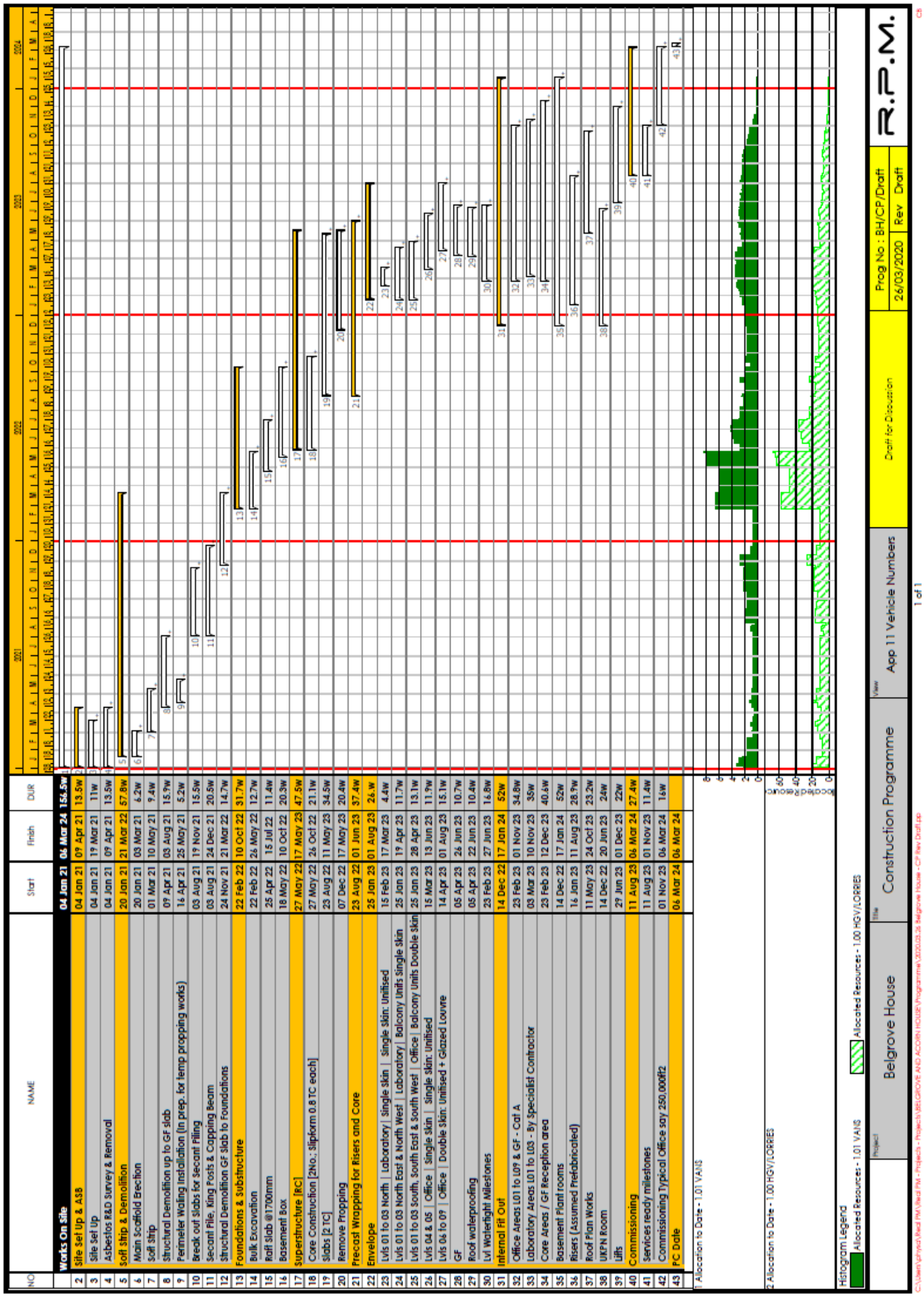
5.1 Summary Programme



Line	Name	Start	Finish	Duration	Duration
	Works On Site	04 Jan 21	06 Mar 24	156w	38em
2	Site Set Up & ASB	04 Jan 21	09 Apr 21	14w	3em
3	Site Set Up	04 Jan 21	19 Mar 21	11w	2em
4	Asbestos R&D Survey & Removal	04 Jan 21	09 Apr 21	14w	3em
5	Soft Strip & Demolition	20 Jan 21	21 Mar 22	58w	14em
6	Main Scaffold Erection	20 Jan 21	03 Mar 21	6w	1em
7	Soft Strip	01 Mar 21	10 May 21	9w	2em
8	Structural Demolition up to GF slab	09 Apr 21	03 Aug 21	16w	4em
9	Perimeter Waling Installation (in prep. for temp propping works)	16 Apr 21	25 May 21	5w	1em
10	Break out Slabs for Secant Piling	03 Aug 21	19 Nov 21	16w	4em
11	Secant Pile, King Posts & Capping Beam	03 Aug 21	24 Dec 21	21w	5em
12	Structural Demolition GF Slab to Foundations	24 Nov 21	21 Mar 22	15w	4em
13	Foundations & Substructure	22 Feb 22	10 Oct 22	32w	8em
14	Bulk Excavation	22 Feb 22	26 May 22	13w	3em
15	Raft Slab @1700mm	25 Apr 22	15 Jul 22	11w	3em
16	Basement Box	18 May 22	10 Oct 22	20w	5em
17	Superstructure (RC)	27 May 22	17 May 23	47w	12em
18	Core Construction (2No.; Slipform 0.8 TC each)	27 May 22	26 Oct 22	21w	5em
19	Slabs (2 TC)	23 Aug 22	11 May 23	34w	9em
20	Remove Propping	07 Dec 22	17 May 23	20w	5em
21	Precast Wrapping for Risers and Core	23 Aug 22	01 Jun 23	37w	9em
22	Envelope	25 Jan 23	01 Aug 23	26w	6em
23	Lvls 01 to 03 North | Laboratory | Single Skin | Single Skin: Unitised	16 Feb 23	17 Mar 23	4w	1em
24	Lvls 01 to 03 North East & North West | Laboratory | Balcony Units Single Skin	25 Jan 23	19 Apr 23	12w	3em
25	Lvls 01 to 03 South, South East & South West | Office | Balcony Units Double Skin	25 Jan 23	28 Apr 23	13w	3em
26	Lvls 04 & 05 | Office | Single Skin | Single Skin: Unitised	15 Mar 23	13 Jun 23	12w	3em
27	Lvls 06 to 09 | Office | Double Skin: Unitised + Glazed Louvre	14 Apr 23	01 Aug 23	15w	4em
28	GF	05 Apr 23	26 Jun 23	11w	3em
29	Roof waterproofing	05 Apr 23	22 Jun 23	10w	3em
30	Lvl Watertight Milestones	23 Feb 23	27 Jun 23	17w	4em
31	Internal Fit Out	14 Dec 22	17 Jan 24	52w	13em
32	Office Areas L01 to L09 & GF - Cat A	23 Feb 23	01 Nov 23	35w	8em
33	Laboratory Areas L01 to L03 - By Specialist Contractor	03 Mar 23	10 Nov 23	35w	8em
34	Core Areas / GF Reception area	23 Feb 23	12 Dec 23	41w	10em
35	Basement Plant rooms	14 Dec 22	17 Jan 24	52w	13em
36	Risers (Assumed Prefabricated)	16 Jan 23	11 Aug 23	29w	7em
37	Roof Plan Works	11 May 23	24 Oct 23	23w	5em
38	UKPN Room	14 Dec 22	20 Jun 23	24w	6em
39	Lifts	21 Jun 23	01 Dec 23	22w	5em
40	Commissioning	11 Aug 23	06 Mar 24	27w	7em
41	Services ready milestones	11 Aug 23	01 Nov 23	11w	3em
42	Commissioning Typical Office say 250,000ft2	01 Nov 23	06 Mar 24	16w	4em
43	PC Date	06 Mar 24	06 Mar 24		
44	PC Date	06 Mar 24	06 Mar 24		

5.2 Vehicle Movement Programmes


NO
NAME
Start
Finish
DUR
Works On Site 04 Jan 21 06 Mar 24 156.5w
Site Set Up & ASB 04 Jan 21 09 Apr 21 13.5w
Site Set Up 04 Jan 21 19 Mar 21 11w
Asbestos R&D Survey & Removal 04 Jan 21 09 Apr 21 13.5w
Soft Strip & Demolition 20 Jan 21 21 Mar 22 57.8w
Main Scaffold Erection 20 Jan 21 03 Mar 21 6.2w
Soft Strip 01 Mar 21 10 May 21 9.4w
Structural Demolition up to GF slab 09 Apr 21 03 Aug 21 15.9w
Perimeter Walling Installation (In prep. for temp propping works) 16 Apr 21 25 May 21 5.2w
Break out Slabs for Secant Piling 03 Aug 21 19 Nov 21 15.5w
Secant Pile, King Posts & Capping Beam 03 Aug 21 24 Dec 21 20.5w
Structural Demolition GF Slab to Foundations 24 Nov 21 21 Mar 22 14.7w
Foundations & Substructure 22 Feb 22 10 Oct 22 31.7w
Bulk Excavation 22 Feb 22 26 May 22 12.7w
Raft Slab @1700mm 25 Apr 22 15 Jul 22 11.4w
Basement Box 18 May 22 10 Oct 22 20.9w
Superstructure [RC] 27 May 22 17 May 23 47.5w
Core Construction [2No.; Slipform 0.8 TC each] 27 May 22 26 Oct 22 21.1w
slabs [21C] 23 Aug 22 11 May 23 34.5w
Remove Propping 07 Dec 22 17 May 23 20.4w
Precast Wrapping for Risers and Core 23 Aug 22 01 Jun 23 37.4w
Envelope 25 Jan 23 01 Aug 23 26.w
Lvls 01 to 03 North | Laboratory| Single skin | Single Skin: Unitised 15 Feb 23 17 Mar 23 4.4w
Lvls 01 to 03 North East & North West | Laboratory| Balcony Units Single Skin 25 Jan 23 19 Apr 23 11.7w
Lvls 01 to 03 South, South East & South West | Office | Balcony Units Double Skin 25 Jan 23 28 Apr 23 13.1w
Lvls 04 & 05 | Office | Single skin | Single Skin: Unitised 15 Mar 23 13 Jun 23 11.9w
Lvls 06 to 09 | Office | Double Skin: Unitised + Glazed Louvre 14 Apr 23 01 Aug 23 15.1w
GF 05 Apr 23 26 Jun 23 10.7w
Roof waterproofing 05 Apr 23 22 Jun 23 10.4w
Lvl Watertight Milestones 23 Feb 23 27 Jun 23 16.8w
Internal Fit Out 14 Dec 22 17 Jan 24 52w
Office Areas L01 to L09 & GF - Cat A 23 Feb 23 01 Nov 23 34.8w
Laboratory Areas L01 to L03 - By Specialist Contractor 03 Mar 23 10 Nov 23 35w
Core Areas / GF Reception area 23 Feb 23 12 Dec 23 40.6w
Basement Plant rooms 14 Dec 22 17 Jan 24 52w
Risers (Assumed Prefabricated) 16 Jan 23 11 Aug 23 28.9w
Roof Plan Works 11 May 23 24 Oct 23 23.2w
UKPN Room 14 Dec 22 20 Jun 23 24w
Lifts 29 Jun 23 01 Dec 23 22w
Commissioning 11 Aug 23 06 Mar 24 27.4w
Services ready milestones 11 Aug 23 01 Nov 23 11.4w
Commissioning Typical Office say 250.00ft2 01 Nov 23 06 Mar 24 16w
PC Date 06 Mar 24 06 Mar 24
2021
2022
2023
2024
Allocated Resources
Histogram Legend
Allocated Resources - 1.00 HGV/LORRIES
Allocated Resources - 1.01 VANS
Project
Belgrove House
Title
Construction Programme
View
App 11 Vehicle Numbers
Draft for Discussion
Prog No : BH/CP/Draft
26/03/2020
Rev Draft
R.P.M.
1 of 1

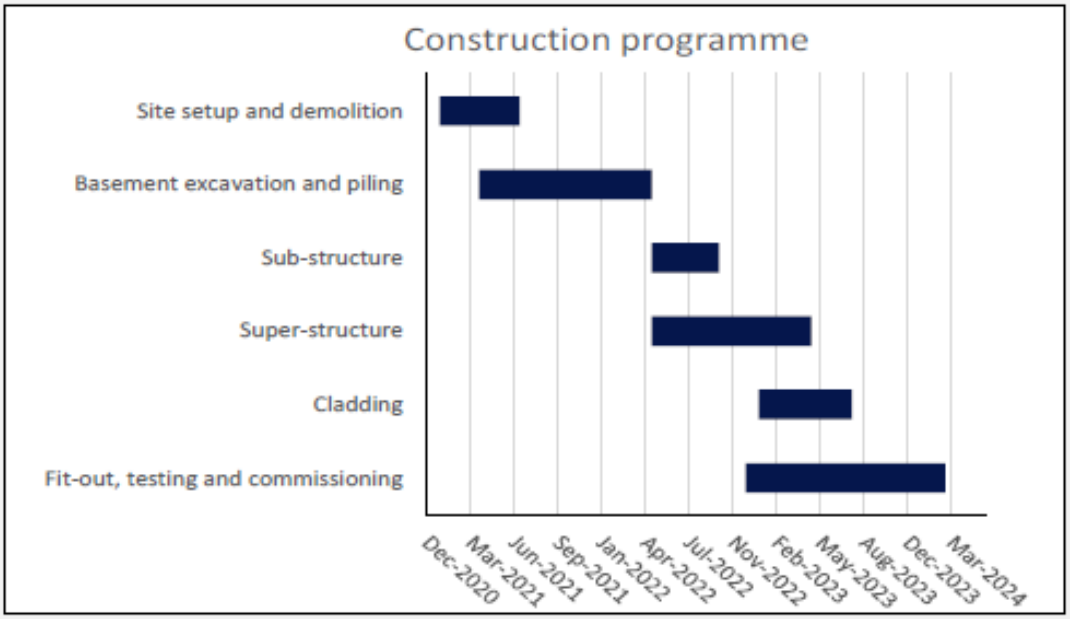

Belgrove House
Construction Programme
App 11 Vehicle Numbers
Draft for Discussion
Prog No : BH/CP/Draft
26/03/2020
Rev Draft
R.P.M.
1 of 1
Histogram Legend
Allocated Resources - 1.01 VANS
Allocated Resources - 1.00 HGV/LORRIES
1 Allocation to Date - 1.01 VANS
2 Allocation to Date - 1.00 HGV/LORRIES

5.3 TfL CLP Tool Information

CONSTRUCTION LOGISTICS PLANNING TOOL (OUTPUTS) Sheet 1 of 2

CONSTRUCTION PROGRAMME OVERVIEW

Construction phase	Start	End
Site setup and demolition	Jan-2021	Jul-2021
Basement excavation and piling	Apr-2021	May-2022
Sub-structure	May-2022	Oct-2022
Super-structure	May-2022	May-2023
Cladding	Jan-2023	Aug-2023
Fit-out, testing and commissioning	Dec-2022	Mar-2024



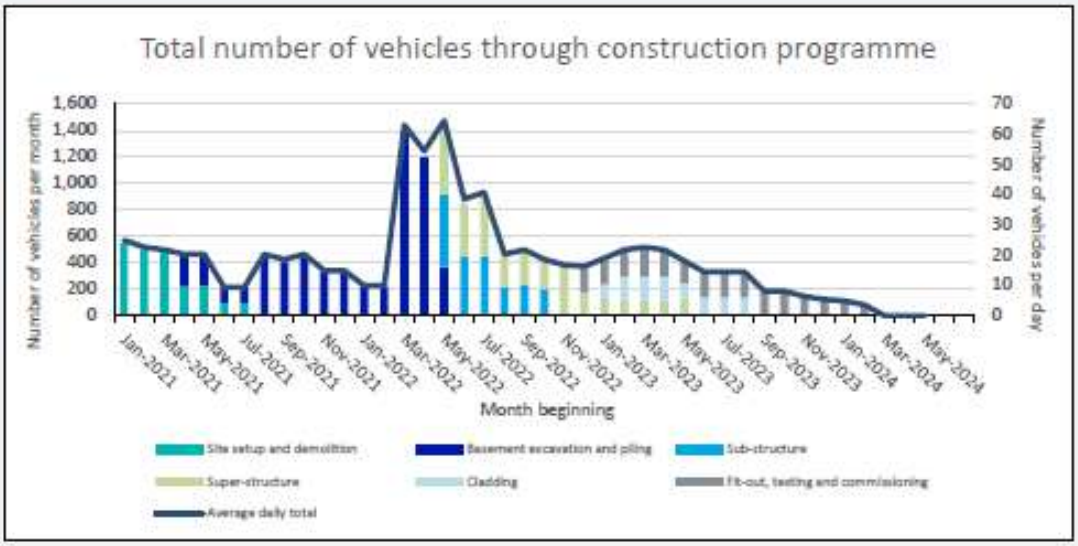
NO. OF VEHICLES IN PEAK PHASE (EX. OTHER PHASES)

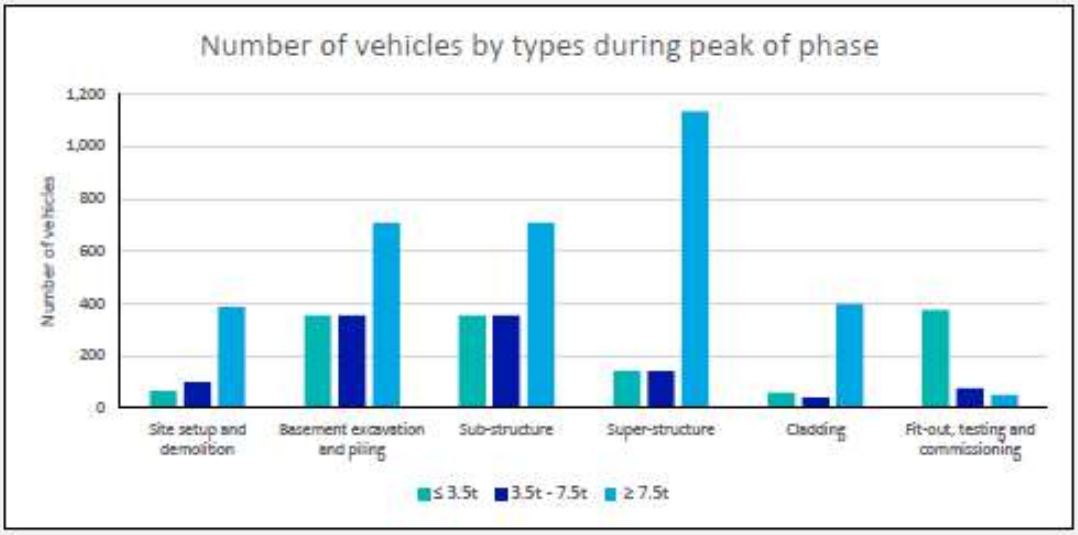
Construction phase	Period of stage	No. of trips (monthly)	Peak no. of trips (daily)
Site setup and demolition	Q1 2021 - Q3 2021	550	25
Basement excavation and piling	Q2 2021 - Q2 2022	1,390	63
Sub-structure	Q2 2022 - Q4 2022	550	25
Super-structure	Q2 2022 - Q2 2023	500	23
Cladding	Q1 2023 - Q3 2023	180	8
Fit-out, testing and commissioning	Q4 2022 - Q1 2024	200	9
Peak period of construction	Q2 2022 - Q2 2022	1,420	65

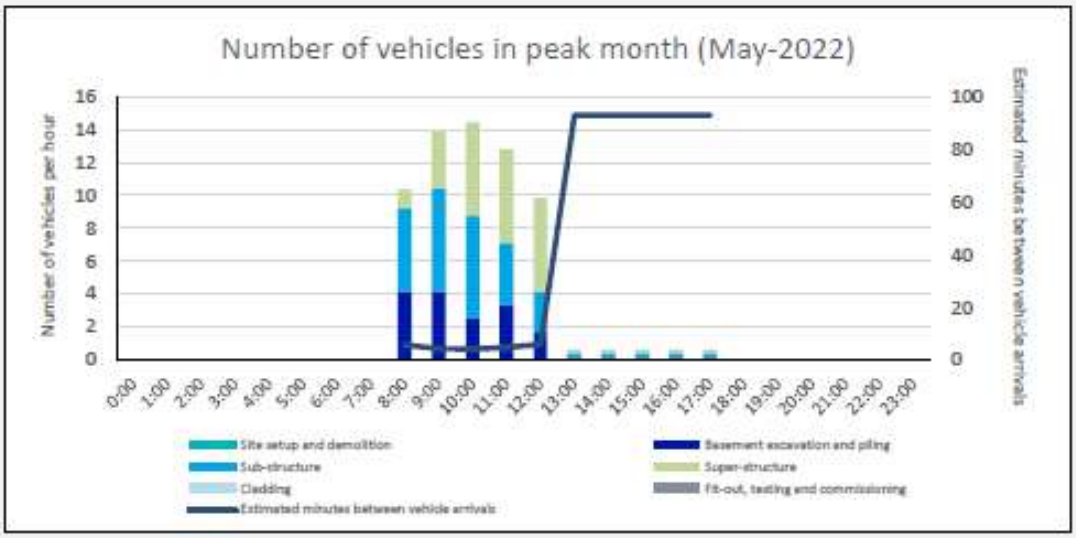
NO. OF VEHICLES IN PEAK PHASE (INC. POSSIBLE OVERLAP OF SUBSEQUENT PHASES)

Construction phase	Period of stage	No. of trips (monthly)	Peak no. of trips (daily)
Site setup and demolition	Q1 2021 - Q3 2021	550	25
Basement excavation and piling	Q2 2021 - Q2 2022	1,420	65
Sub-structure	Q2 2022 - Q4 2022	1,420	65
Super-structure	Q2 2022 - Q2 2023	1,420	65
Cladding	Q1 2023 - Q3 2023	500	23
Fit-out, testing and commissioning	Q4 2022 - Q1 2024	500	23

CONSTRUCTION LOGISTICS PLANNING TOOL (OUTPUTS) Sheet 2 of 2







6.0 Environmental Considerations during Construction

6.1 Site Working Hours

The programme is based upon the following proposed working hours;

- Monday to Friday 0800hrs – 1800 hrs.*
- Saturday 0800hrs - 1300hrs.*
- No noisy works between 0800hrs and 0900hrs.
- No Sunday or Bank Holiday working planned unless by prior approval for specific works. i.e. Mobile crane for demolition plant install and removal, tower crane and installation and removal activities. These will generally be carried out using rigid vehicles, but some may require delivery using articulated vehicle.

Noisy operations will not take place outside these times.

*With the scope of demolition and piling planned, it is expected that the Principal Contractor will make an application to the LBC Environmental Protection Team for prior consent for works through Section 61 of the Control of Pollution Act 1974. The demolition and piling programme have already taken these hours into account.

6.2 Electric and Hybrid Vehicles (E&HVs)

The use of electric and hybrid plant and vehicles both within the site and undertaking deliveries to and from the site will be encouraged.

6.3 Non-Road Mobile Machinery (NRMM)

In accordance with the Mayor London's Planning Guidance on 'The Control of Dust and Emissions during Construction and Demolition' all non-road mobile plant and machinery used on the project will be registered on the NRMM register and comply with the emission criteria of Directive 97/68/EC covering net power between 37kW and 560kW.

6.4 Considerate Constructors Scheme

The development will be undertaken in accordance Considerate Constructor Scheme (CCS) with target set for minimum performance for the project, contractors and suppliers.

The Contractor will be required to register the Project under the Considerate Constructor Scheme with a minimum target score of 7 in each section of the Schemes site code for Considerate Practice.

As part of the CCS scheme regular inspections will be carried out and subsequent reports will be distributed as part of the contractor's monthly report.

6.5 Noise, Vibration and Dust

In order to mitigate construction noise vibration and dust the works will employ the 'Best Practicable Means'. Including application of methods recommended in BS 5228: Noise Control on Construction and Open sites, for example, undertaking works to ensure minimum disturbance, using muncher attachments to excavators in lieu of pneumatic breaker and utilising separation cut lines to minimise vibration transfer where applicable.

Construction processes will be monitored using air quality monitors to record particulates and the results compared to London wide monitoring stations. A site action level measured over 15 minutes will be agreed through consultation with LBC Environmental Team, once set appropriate mitigating action would be taken if this level is approached.

The following measures are to be undertaken for the control and monitoring of dust, fine particles and odours:

The contractor will develop a Code of Construction Practice (CoCP) in relation to construction noise and fugitive dust which must detail:

- The type of works to be undertaken.
- Construction techniques to be used.
- The site layout and access arrangements.
- Times and duration of site operations.
- An inventory and timetable of all dust-generating activities.
- Principle Contractor(s) Statutory Obligations and duties.
- How staff will be trained in the use of noisy machinery.
- How materials are to be handled to minimise the potential for noise nuisance.
- Times and durations of any abnormal noise and how the public will be kept informed.
- The appropriate range of dust suppression and control measures to be implemented in accordance with a 'high risk' site as defined under the Best Practice Guidance for 'The Control of Dust and Emissions from Construction and Demolition' (Greater London Authority and London Councils)
- The on-site storage of fuels or chemicals.
- Identify the Site Environmental Management Representative (SEMR).

All vehicle loads entering / departing the site are to be covered and material sprayed with water on all unsealed or exposed areas via watering carts at regular intervals during dry weather.

Erect temporary solid hoardings along all site boundaries to act as a windbreak and to limit lateral dust 'escape'.

Ensure that suitable training and awareness are provided to construction personnel so that they understand their responsibilities regarding environmental management, particularly the control of fugitive dust.

The appointed neighbourhood liaison/relationship manager will undertake regular liaison to ensure all residents and users of adjacent premises have been given advance notice to minimise dust concerns.

Where appropriate, the following measures to minimise noise and vibration levels will be adopted:

- Using modern, quiet and well-maintained equipment;
- Using low impact techniques, such as munchers where applicable;
- Using electrically powered equipment (mains or super silenced generators);
- Use of screws and drills rather than nails installing the hoarding;
- Careful material handling such as lowering rather than dropping items;
- Isolating the deconstruction works from sensitive neighbours, to minimise the transfer of vibration and structure borne noise;
- Avoidance of unnecessary noise between operations, shouting, loud radios or excessive revving of engines by effective site management;
- The use of radios on site, shouting, swearing, singing; sitting outside the site is not to be permitted at any time.
- No idling engines to reduce noise and pollution.

The distance between noise and vibration sources and sensitive neighbours will be maximised and the sound path obstructed, where practical, by considerate siting of stationary plant and loading/unloading areas.

The suitability of specific noise limits is highly dependent upon the individual situation. The factors to be considered include the characteristics of the potentially affected neighbours, baseline ambient noise levels and the nature and duration of the works.

6.6 Neighbour and Community Liaison

The appointed Logistics and Neighbourhood Liaison Relationship Manager will liaise with the LBC, local residents, businesses and other interested parties to keep them informed of progress on site and forthcoming activities which may affect them.

As part of the demolition and construction processes, the Principal Contractor will meet with the LBC Environmental Health and Highway representatives and key members of from the local community to fine tune methods of working and the measures to minimise disruption. As part of this liaison, regular meetings will be held to ensure they are kept informed of the progress and any comments received logged and actioned as a result of the works.

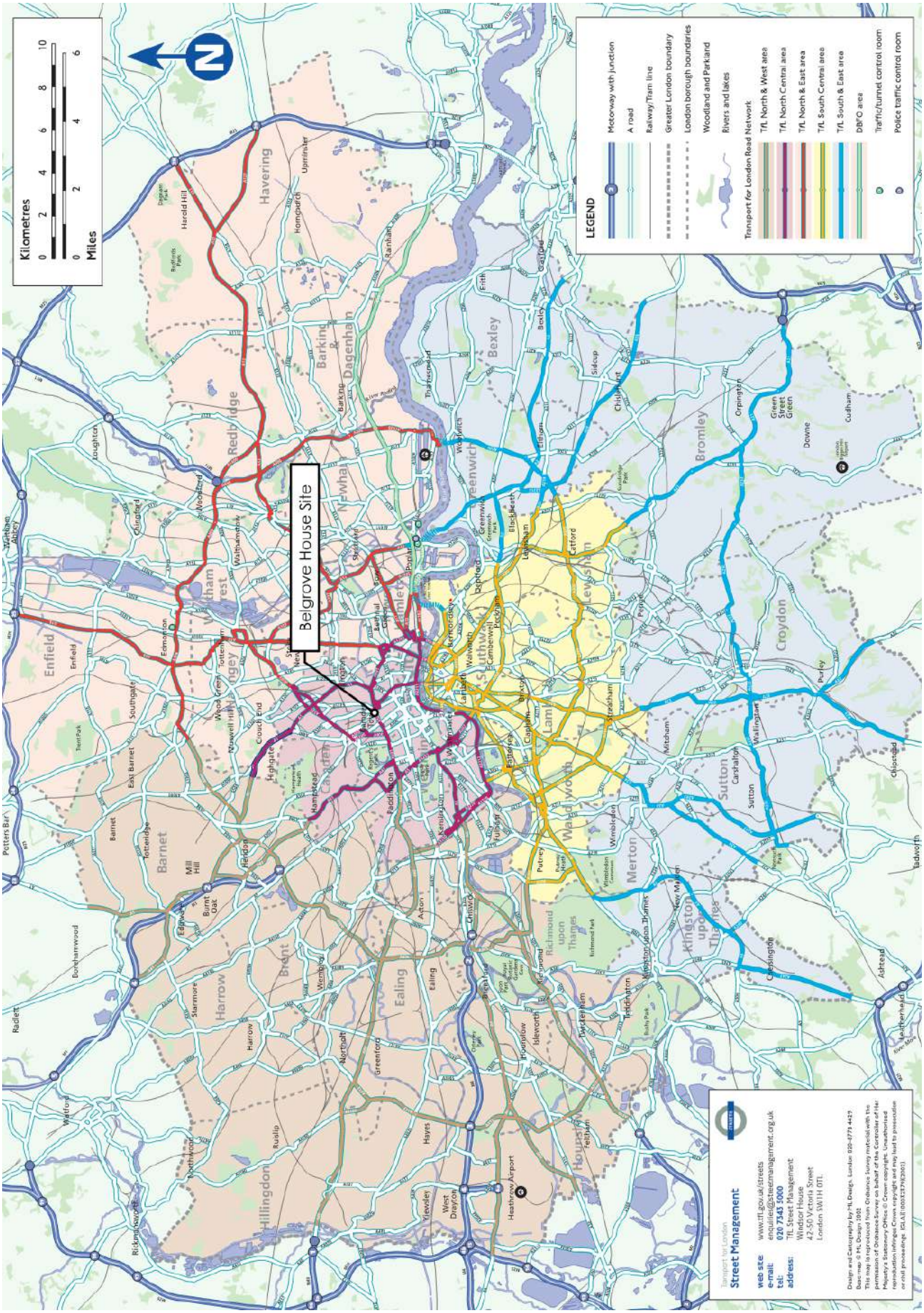
To mitigate disturbance the Principal Contractor will identify all residential properties and other sensitive occupiers in close proximity to the site prior to commencing work.

Prior to starting work, all occupiers in the vicinity of the site will be informed of the start date, the duration and nature of the project, the principal stages of the project and contact names and numbers of appropriate personnel via hand delivered mailed Project newsletter.

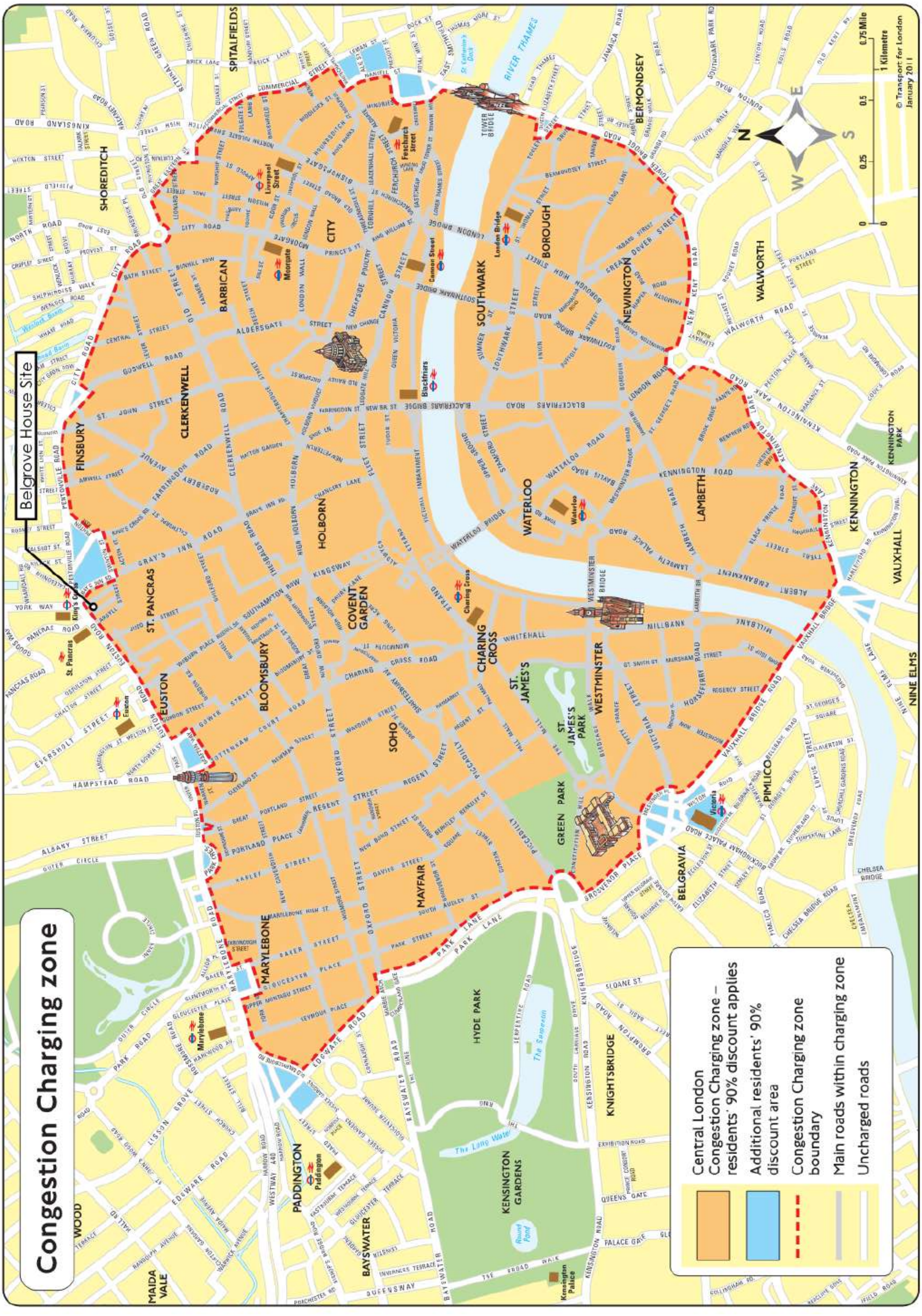
Further newsletters notifying neighbours of progress and forthcoming activities, particularly those which may cause disturbance, access difficulties and the like, are to be hand delivered to all adjoining occupiers and other neighbouring occupiers who may be affected by the works, on a monthly basis throughout the duration of the works.

A 'display board' will be erected outside the site, which will identify key personnel, contact addresses and telephone numbers as well as a full copy of the planning permissions and any forthcoming activities relating to

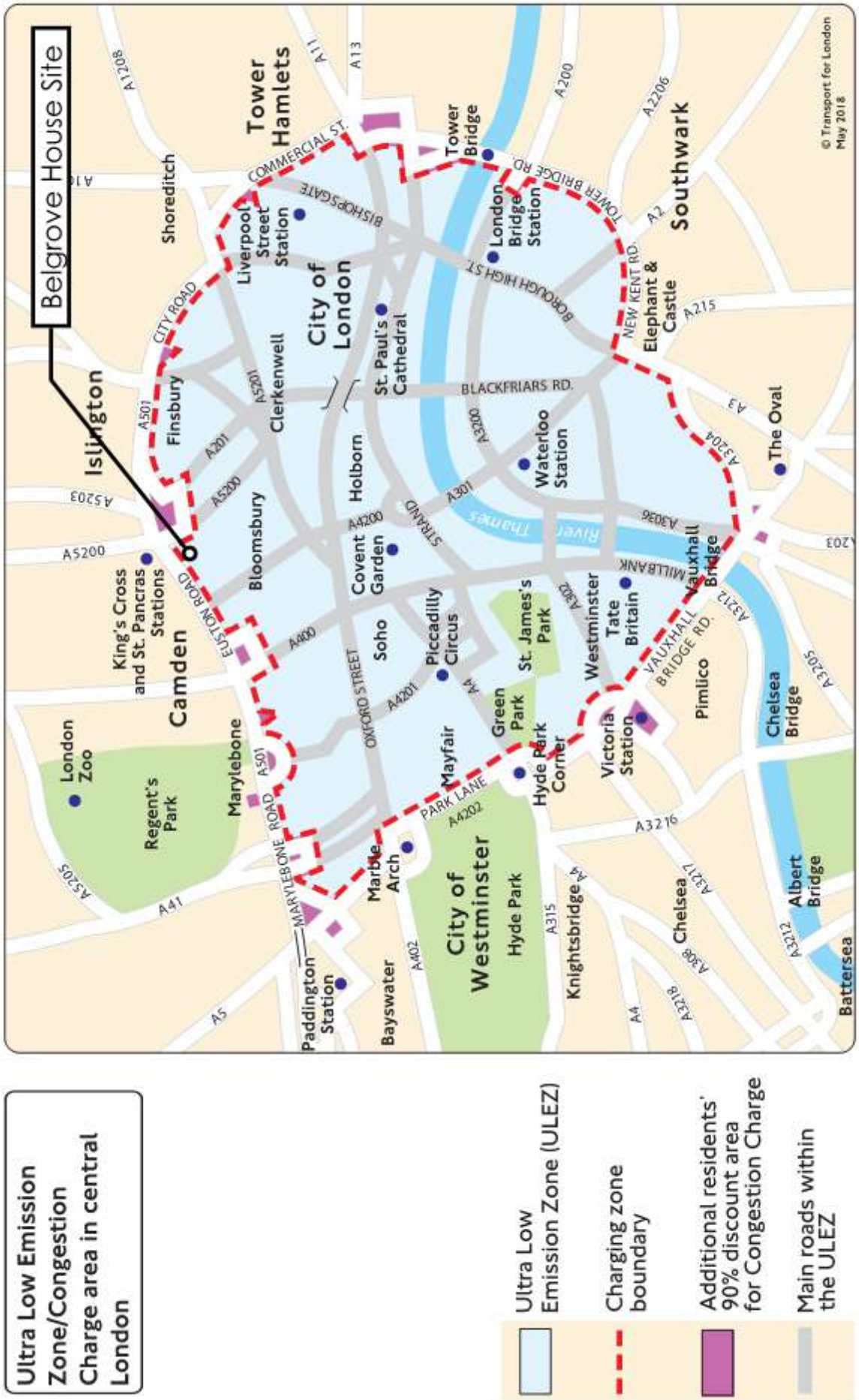
Appendix 1 - TfL Primary Road Network Plan


Belgrove House Site
LEGEND
Motorway with junction
A road
Railway/Tram line
Greater London boundary
London borough boundaries
Woodland and Parkland
Rivers and lakes
Transport for London Road Network
TfL North & West area
TfL North Central area
TfL North & East area
TfL South Central area
TfL South & East area
DBFO area
Traffic/tunnel control room
Police traffic control room
Kilometres
Miles
Transport for London
Street Management
web site: www.tfl.gov.uk/streets
e-mail: enquiries@streetmanagement.org.uk
tel: 020 7343 3000
address: TfL Street Management
Windsor House
42-50 Victoria Street
London SW1H 0TL

Appendix 2 – TfL Congestion Charge Zone Map


Congestion Charging zone
Belgrove House Site
Central London Congestion Charging zone – residents' 90% discount applies
Additional residents' 90% discount area
Congestion Charging zone boundary
Main roads within charging zone
Uncharged roads
0 0.25 0.5 0.75 Mile
1 Kilometre
© Transport for London January 2011

Appendix 3 – ULEZ Map


Belgrove House Site
Tower Hamlets
Shoreditch
Islington
Finsbury
Clerkenwell
City of London
St. Paul's Cathedral
Liverpool Street Station
Tower Bridge
London Bridge Station
Southwark
Elephant & Castle
The Oval
Waterloo Station
Holborn
Bloomsbury
Covent Garden
Soho
Piccadilly Circus
King's Cross and St. Pancras Stations
Camden
Marylebone
London Zoo
Regent's Park
Mayfair
St. James's Park
Westminster
Tate Britain
Victoria Station
Pimlico
Chelsea Bridge
Vauxhall Bridge
Green Park
Hyde Park Corner
Marble Arch
City of Westminster
Hyde Park
Paddington Station
Bayswater
Knightsbridge
Chelsea
Albert Bridge
Battersea
Ultra Low Emission Zone/Congestion Charge area in central London
Ultra Low Emission Zone (ULEZ)
Charging zone boundary
Additional residents' 90% discount area for Congestion Charge
Main roads within the ULEZ
© Transport for London May 2018

Appendix 4 – Major Plant Examples

Piling Rig


Hydraulic Rotary Rig
SR-75
SR 75
SR-75
soilmec
Drilling and Foundation Equipment

SR-75 Hydraulic Rotary Rig

LDP APPLICATIONS

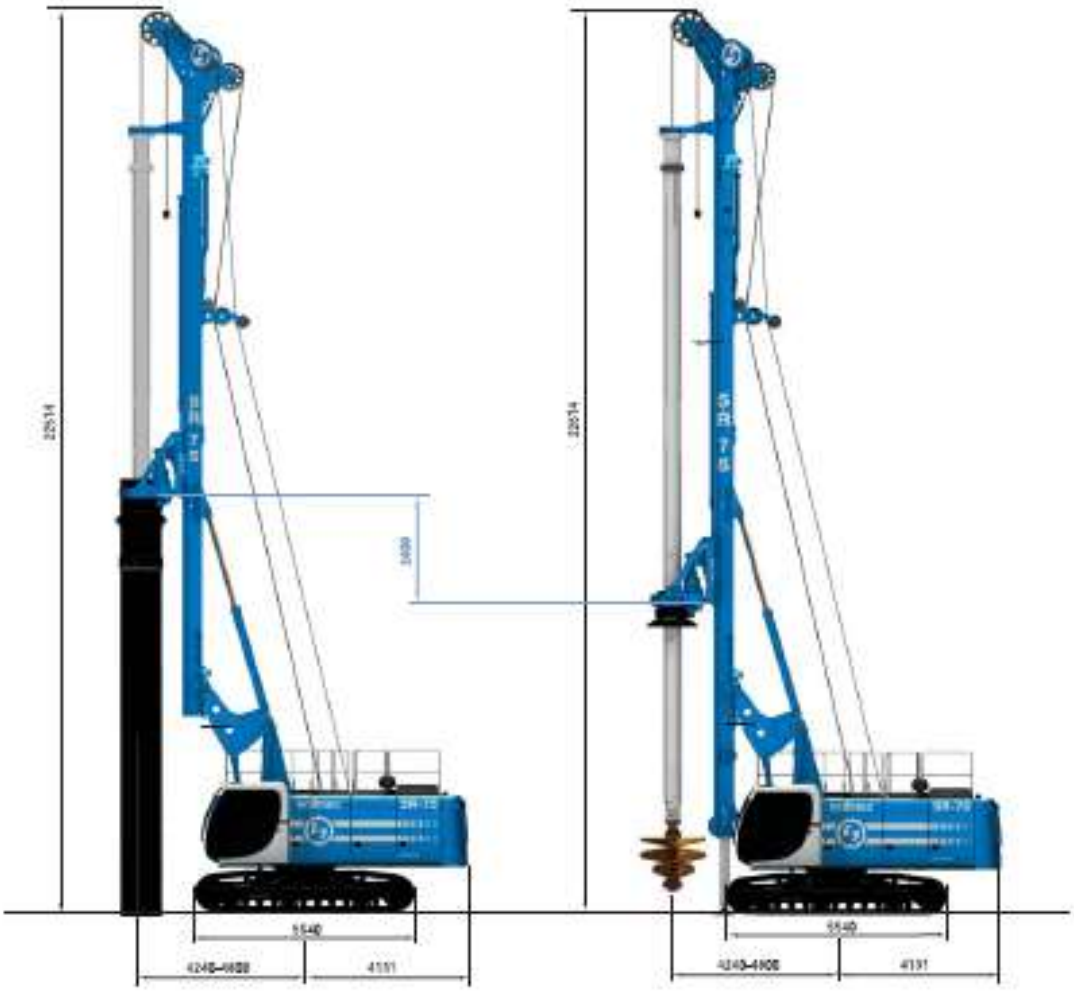
LDP - Large Diameter Piles - WCS version		
Operating weight c/w 4x10,5 kelly bar	75700 kg	166869.7 lb
Max pile diameter	1710 (2500)* mm	67.3 (98.43)* in
Max pile depth - friction kelly	77 m	252.62 ft
Max pile depth - locking kelly	62,5 m	205 ft

* bar below mast

SR-75 Hydraulic Rotary Rig

LDP APPLICATIONS

Crowd cylinder double positioning

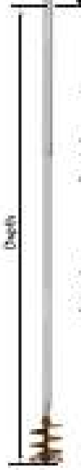


LDP • Large Diameter Piles • CCS version		
Operating weight c/w 4x10.5 kelly bar	74000 kg	163093 lb
Max pile diameter	3000 (3500)* mm	78.7 (98.43)* in
Max pile depth – friction kelly	77 m	252.62 ft
Max pile depth – locking kelly	62.5 m	205 ft

* tool below mast

SR-75 Hydraulic Rotary Rig

KELLY DRILLING SYSTEM

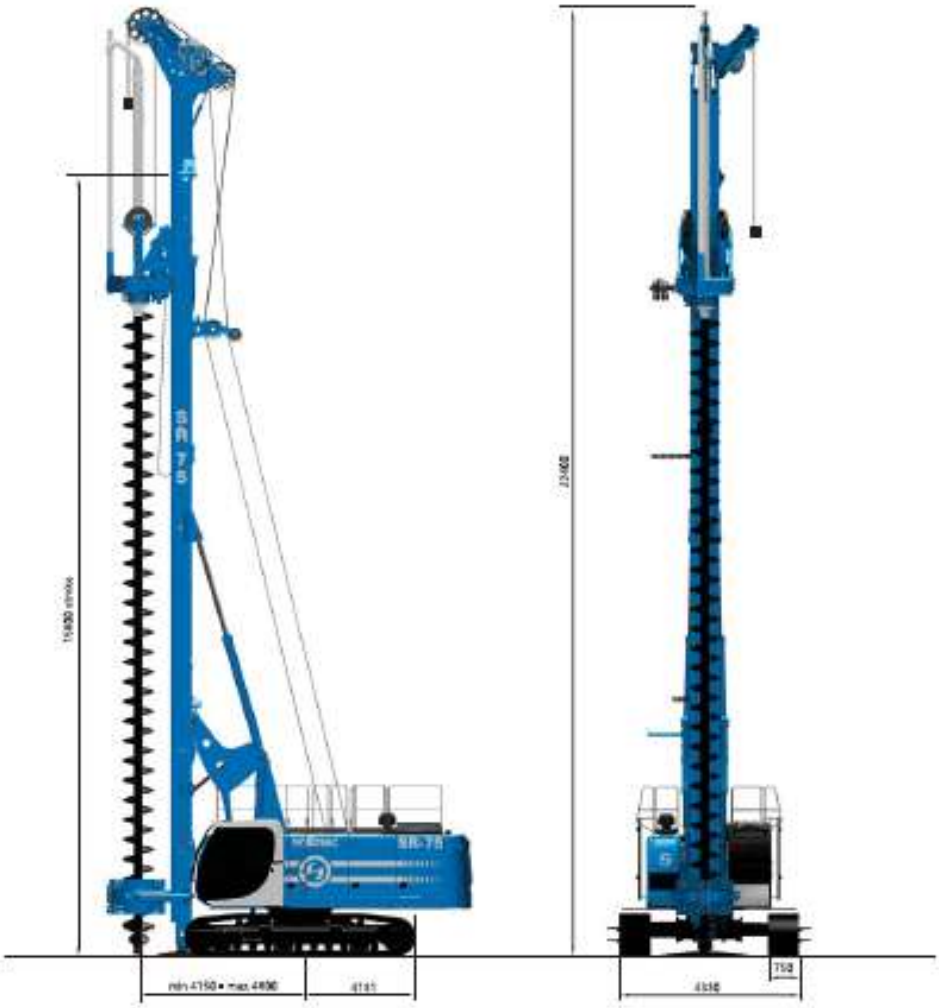


Drilling Depths	Kelly dimensions		Depth		Weight		CCS SYSTEM H = low pos		CCS SYSTEM H = high pos		WCS SYSTEM H	
		section x m	m	ft	ton	ton	m	ft	m	ft	m	ft
3 parts	BL HD	3 x 9	24,0	78,7	3,4	3,5	8,5	27,9	10,3	33,8	10,3	33,8
3 parts	BL HD	3 x 10,5	29,5	96,8	4,2	4,3	8,5	27,9	8,9	29,2	8,9	29,2
3 parts	BL HD	3 x 13,5	37,0	121,4	6,7	6,8	4,7	15,4	4,7	15,4	4,7	15,4
3 parts	BL HD	3 x 16,5	47,0	154,2	8,0	8,1	1,8	5,9	1,8	5,9	1,8	5,9
4 parts	BL HD	4 x 10,5	37,0	121,4	5,7	5,8	8,5	27,9	8,9	29,2	8,9	29,2
4 parts	BL HD	4 x 11,5	41,5	136,2	6,2	6,3	6,7	22,0	6,7	22,0	6,7	22,0
4 parts	BL HD	4 x 13,5	50,1	164,4	7,1	7,2	4,7	15,4	4,7	15,4	4,7	15,4
4 parts	BL HD	4 x 15,5	58,5	191,9	8,1	8,2	2,7	8,9	2,7	8,9	2,7	8,9
4 parts	BL HD	4 x 16,5	62,5	205,1	8,5	8,6	1,8	5,9	1,8	5,9	1,8	5,9
5 parts	FR HD	4 x 10,5	37,0	121,4	5,7	5,8	8,5	27,9	8,9	29,2	8,9	29,2
5 parts	FR HD	4 x 13,5	50,1	164,4	7,1	7,2	4,7	15,4	4,7	15,4	4,7	15,4
5 parts	FR HD	4 x 15,5	58,5	191,9	8,1	8,2	2,7	8,9	2,7	8,9	2,7	8,9
5 parts	FR HD	4 x 16,5	62,5	205,1	8,5	8,6	1,8	5,9	1,8	5,9	1,8	5,9
	FR HD	5 x 11,5	51,5	169,0	8,4	8,5	7,0	23,0	7,0	23,0	7,0	23,0
	FR HD	5 x 13,5	62,0	203,4	9,7	9,9	4,5	14,8	4,5	14,8	4,5	14,8
	FR HD	5 x 14,5	67,5	221,5	10,3	10,5	3,5	11,5	3,5	11,5	3,5	11,5
	FR HD	5 x 16,5	76,0	249,4	11,6	11,8	1,5	4,9	1,5	4,9	1,5	4,9

* *Non self-mountable kelly bar*
** *Rathole dedicated kelly bar*

SR-75 Hydraulic Rotary Rig

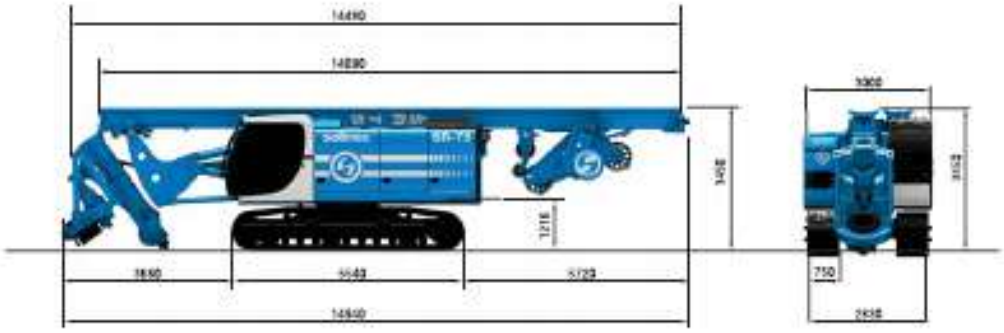
CFA APPLICATIONS Quick conversion kit



CFA • Continuous Flight Auger • Quick conversion kit		
Max pile diameter	1200 mm	203926 ⌀
Max pile depth c/w 9 m auger extension	23,4 m	76,7 ft
Max pile depth with auger cleaner, c/w 6 m auger extension	22 m	72 ft
Extraction force	800 kN	179847 lbf
Crowd force on auger (optional)	408 kN	91722 lbf

SR-75 Hydraulic Rotary Rig

TRANSPORT, DIMENSIONS AND WEIGHTS



Transport configuration		
Width	3000 mm	118.2 in
Height	3450 mm	135.8 in
Length w/o rotary	14490 mm	570 in
Weight CCS / WCS	52200 / 56200 kg	115061 / 123899 lb
Min transport weight CCS / WCS	49500 / 53460 kg	109128 / 117846 lb

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soilmec
Drilling and Foundation Equipment

Passenger/Goods Hoist

Alimak Scando 20/30 TD
Passenger Goods Hoist

Hoist Technical Specification

Capacity

Pay-load capacity	2000kg
Passengers	19
Speed	40m/min
Max. lifting height	150m

Cage Dimensions

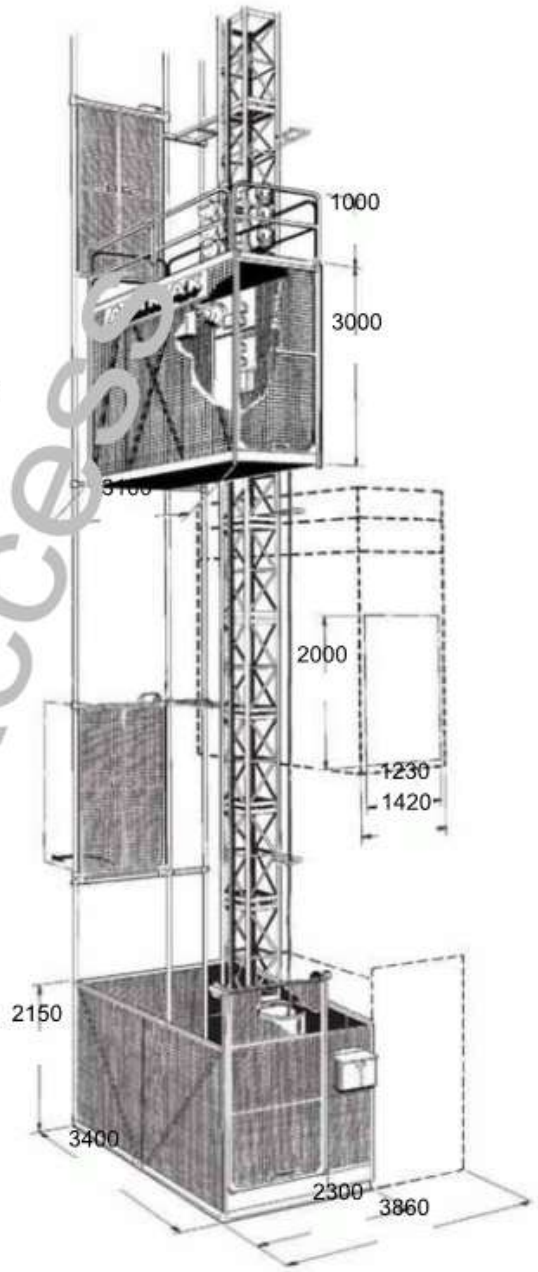
Internal width x length x height	1.3m x 3.0m x 2.6m
Door opening width x height	1.23m x 2.0m

Electrical Data

Power supply (3 phase & earth no neutral)	415V 80A
Power supply fuses	80A
Starting current	300A
Power consumption	39kVA

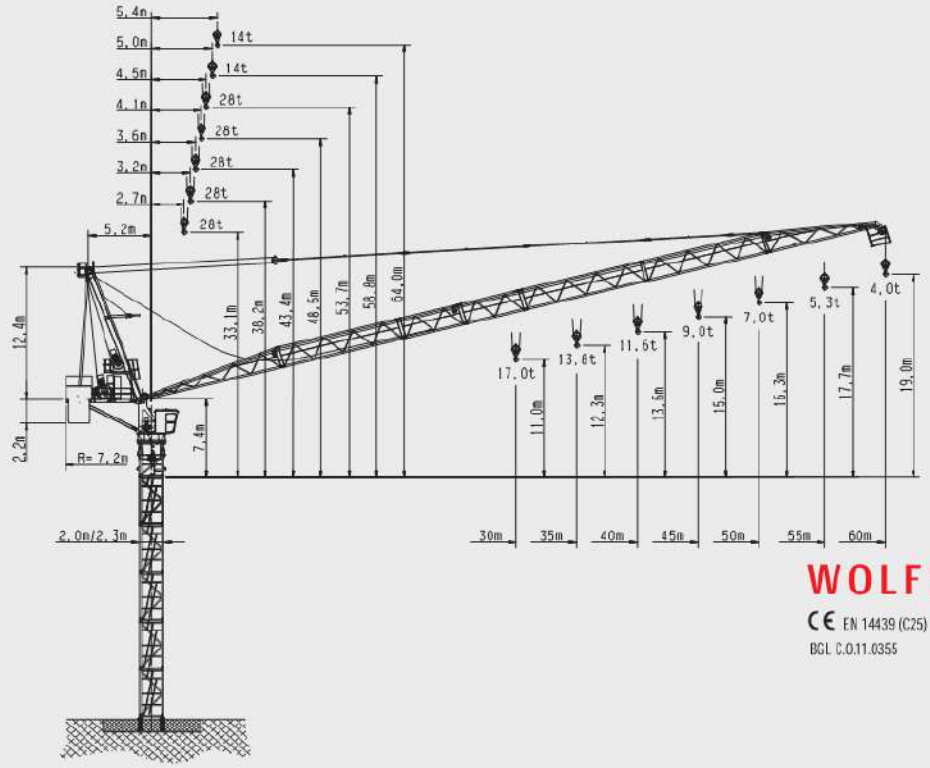
Options Available With This Hoist

Embedment frame
Steel base plate
Landing protection panels
Landing infill plates
Heavy duty base ramps
Landing bridges
Top hat
Drop down flaps
Metal floors
"C" Door (will add 175mm to the width of the ground enclosure)



Tower Crane – Wolffkran 355B

WOLFFKRAN



WOLFF 355 B

CE EN 14439 (C25)
BGL C.0.11.0355

Nutzlastmoment / load moment / Couple de charge: max. 5100 kNm
Traglast / lifting capacity / Capacité de levage: max. 28,0 t
Ausladung / jib radius / Portée: max. 60,0 m

WOLFF 355 B Kolli-Liste · Colli List · Liste de colisage

Pos. Pos. Pos.	Stck. Pcs.	Bezeichnung / Description / Description	Kolli / Colli / Colis	L (m) Length Longueur	B (m) Width Largeur	H (m) Height Hauteur	Gewicht (kg) Weight Poids	Volumen (m³) Volume Volume
1	1	Turmspitzenoberteil / Tower top upper part / Porte-flèche		13,36	2,30	2,52	9800	77,44
2	1	Turmspitzenunterteil kompl. / Tower top lower part complete / Pivot tournant complète		7,96 8,12	2,30 2,32	2,53 TV 20 2,80 HT 23	15300 16600	46,32 52,75
		Turmspitzenunterteil / Tower top lower part / Pivot tournant Pos. 2 zerlegt / Item 2 disassembled / Pos. 2 groupe		5,63 5,82	2,30 2,32	2,53 TV 20 2,80 HT 23	11700 12995	32,76 37,81
3	1	Führerhausaufhängung / Driver's cabin suspension / Fixation cabine		2,80	2,07	0,51	400	2,96
	1	Führerhaus / Driver's cabin / Cabine		2,26	1,45	2,30	940	7,54
4	1	Gegenausleger / Counterjib / Contre-flèche mit Podesten / with platforms / avec plateformes		6,58	2,30	0,93	5150	14,08
5	1	Maschinenplattform / Machinery platform / Plateforme avec mecanisme de levage Hw 28110FU (mit Hubseil / with hoisting rope / avec le câble de levage Ø26 mm x 1030 m ~ 3347 kg und 2. Bremse / and 2nd brake / et 2ème frein)		2,31	2,19	2,41	8200	12,12
6	1	Hw 28132FU (mit Hubseil / with hoisting rope / avec le câble de levage Ø26 mm x 1030 m ~ 3347 kg und 2. Bremse / and 2nd brake / et 2ème frein)		2,98	2,56	2,81	11196	21,44
7	1	Seilberuhigung / Rope swing-reduction device		2,71	1,39	0,52	215	1,96
8	1	Auslegerteil 1 / Jib part 1 / Elément de flèche 1		11,92	2,22	2,00	2250	52,93
9	1	Auslegerteil 2 mit WOLFF Schild / Jib part 2 with WOLFF plate / Elément de flèche 2 avec plan neau WOLFF		10,56	1,71	1,96	1710	35,40
10	1	Auslegerteil 3 / Jib part 3 / Elément de flèche 3		5,39	1,71	1,96	960	18,07
11	1	Auslegerteil 4 / Jib part 4 / Elément de flèche 4		5,39	1,71	1,96	930	18,07
12	2	Auslegerteil 5 / Jib part 5 / Elément de flèche 5		10,56	1,71	1,96	1630	35,40
13	1	Auslegerteil 6 / Jib part 6 / Elément de flèche 6		10,16	1,71	1,99	2020	34,58
14	5	Abspannlaschen / Bracing brackets / Tirants		10,51	0,24	0,61	1350	1,54
15	1	Unterflasche 28 t / Hook block 28 t / Crochet 28 t		0,68	0,26	1,63	540	0,29

Der Leitwolf.
The leader of the pack.

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www.wolffkran.de

WOLFF 355 B

Hauptkomponenten
Grundausleger 30 m. Verlängerung bis 60 m. Ausladung in 5 m Schritten. Turmspitze mit Einziehwerk. Drehrahmen mit Führerhaus, Drehwerk, Kugeldrehverbindung mit Zentralschmierung und Schleifringsystem. Gegenausleger mit Hubwinde, Schaltschrank und Gegengewichten.

Antriebstechnik
Alle Antriebe mit frequenzgeregelten Kurzschlussläufermotoren und Motorvollschutz (Thermofühler). Hubwinde Hw28110FU / Hw28132FU Drehwerk mit elektrisch betätigter Windfreistellung. Automatische Windanfahrschaltung. Einziehwinde EW 1515 FU.

Elektrische Ausrüstung
Mehrspannungsausführung für Netze 380 V – 460 V (50/60 Hz). Elektronische Sicherheits- Kransteuerung mit Bustechnik. Inkrementale Absolutweggeber für alle Arbeitsbewegungen. Elektronische Lastmessung. Grafik-Terminal für Bedienerinformation mit mehrsprachigen Diagnosemeldungen.

Sicherheitseinrichtungen
Elektronische Überlastsicherung. Erhöhung der Lastmomentgrenze durch automatische Reduzierung der Hubgeschwindigkeit. Menügeführte Einstellungen der Überlastsicherung und aller Endschalter vom Führerhaus aus. Dreh- und Ausladungsbegrenzung. Antikollisionsschnittstelle. Elektronisch geregelter horizontaler Lastweg.

Turmelemente, Klettereinrichtung
Turmkombination mit WOLFF Turmelementen. WOLFF Schlagbolzen-Verbindung. Abnehmbares hydraulisches WOLFF Kletterwerk KWH 20.6.

Unterwagen UW
WOLFF Unterwagen UW mit Spurweiten von 6,0 – 8,0 m.

Kreuzrahmenelemente KRE, Kreuzrahmen KR
Zur stationären Aufstellung. Kreuzrahmenelemente KRE sind umrüstbar zu Unterwagen UW.

Anschlussleistungen und Hakenwege (Drehteil)
194 kVA (Hw 28110 FU), Hakenweg 460 m bei 2-Strangbetrieb.
205 kVA (Hw 28132 FU), Hakenweg 460 m bei 2-Strangbetrieb.

Main Components
30 m basic jib. Extensions up to 60 m radius in 5 m steps. Towertop with luffing winch. Slewing frame with driver's cabin, control cabinet, slewing gear, ball race bearing with central lubrication unit and slipring system. Counterjib with hoisting winch and counterweights.

Drive Technique
All drives frequency controlled squirrel cage motors, fully thermal protected. Hoisting winch Hw28110FU / Hw28132FU. Slewing gear with electrically operated weathervaning device. Automatic windforce compensation controls. Luffing winch Ew 1515 FU.

Electrical Equipment
Multivoltage equipment for supplies from 380 V to 460 V at 50/60 cycles. Electronic safety crane controls with bus technology. Incremental absolute encoders for all operating movements. Electronic load measuring device. Multilingual graphic display showing information to operator, both operational and diagnostics.

Safety Devices
Electronic overload protection system. Increased load moment limitation by automatically hoisting speed reduction. Menu guided setting of overload protection system and of all limiters from operators cabin. Working space limiter. Anti collision interface. Electronic controlled level luffing.

Tower Elements, Climbing Device
Tower configuration of WOLFF system tower elements. WOLFF slug bolt connection. Detachable hydraulic WOLFF system climbing device KWH 20.6.

Undercarriage UW
WOLFF system undercarriage UW can be used with gauge from 6,0 up to 8,0 m.

Cross Frame Element KRE, Cross Frame KR
For stationary installation. KRE elements can be modified to UW.

Power Requirements and hook paths (Slewing part)
194 kVA with Hw 28110 FU, hook path 460 m in 2-fall operation.
205 kVA with Hw 28132 FU, hook path 460 m in 2-fall operation.

Eléments principaux
Flèche de base 30 m. Prolongements jusqu'à 60 m de portée, en tronçon de 5 m. Porte-flèche avec mécanisme de relevage de la flèche. Partie tournante avec cabine, entrainement de rotation, couronne avec pompe à graissage centralisé et collecteur. Contre-flèche avec entrainement levage, armoire électrique et contrepoids.

Technique d'entrainement
Tous les entrainements sont équipés de moteurs à rotor en court-circuit réglé par des convertisseurs de fréquences et protections thermiques. Mécanisme de levage Hw28110FU / Hw28132FU. Entrainement rotation avec mise en girouette électrique. Compensation automatique en cas de vent. Mécanisme de relevage de la flèche EW 1575 FU.

Equipement électrique
Equipement multi voltages pour des tensions de 380 V à 460 V (50 / 60 Hz). Réglage électronique de sécurité avec technique Bus. Codeurs angulaires incrémentaux pour tous les mouvements de travail Mesurage électronique de la charge. Display graphique multi langages avec des informations d'opération et diagnostique.

Dispositif de sécurité
Le contrôle électronique de surcharge permet d'augmentar la charge maximale en réduisant la vitesse de travail. Réglage de la sécurité surcharge et des fins de courses depuis le display de la cabine. Limitation de rotation et de relevage. Jonction interface de anticollision. Parallélogramme électronique d'élévation.

Eléments de tour, cage pour télescopage
Combinaison de mât avec des éléments de tour système WOLFF. Assemblage des éléments par axes. Cage pour télescopage hydraulique amovible WOLFF KWH 20.6.

Châssis translation
Châssis translation système WOLFF avec écartement de 6,0 à 8,0 m.

Elément croix de base KRE, croix de base KR
Pour montage stationnaire. Les éléments KRE sont modifiables en UW.

Puissance absorbée et course du crochet (seulement partie tournante)
194 kVA (Hw 28110 FU) avec une course maximale du crochet de 460 m.
205 kVA (Hw 28132 FU) avec une course maximale du crochet de 460 m.

Antriebe · WOLFF 355 B · (Hw 28110 FU)
Mechanisms
Mécanismes

Motor (kW) motor Moteur	110	110	75,0	7,5	6 x 5,5
Geschwindigkeit speed Vitesse	0 - 2,5 t 0...185 m/min stufenlos / stepless / en continue 0 - 14,0 t 0...40 m/min	0 - 5,5 t 0...92 m/min stufenlos / stepless / en continue 0 - 28,0 t 0...20 m/min	1,80 min	0,80 min⁻¹	25,0 m/min
Hakenweg (m) hook path course du crochet	920	460			

Antriebe · WOLFF 355 B · (Hw 28132 FU)
Mechanisms
Mécanismes

Motor (kW) motor Moteur	132	132	75,0	1,5	6 x 5,5
Geschwindigkeit speed Vitesse	0 - 1,7 t 0...280 m/min stufenlos / stepless / en continue 0 - 14,0 t 0...48 m/min	0 - 4,0 t 0...140 m/min stufenlos / stepless / en continue 0 - 28,0 t 0...25 m/min	1,80 min	0,80 min⁻¹	25,0 m/min
Hakenweg (m) hook path course du crochet	920	460			

Traglasten (t) · WOLFF 355 B
Load Data
Charges

Ausladung (m) / jib radius (m) / Portée (m)			20	25	30	35	40	45	50	55	60
60	5,4 – 27,0	14,0 t	14,0	14,0	12,2	9,8	8,1	6,7	5,6	4,7	4,0
55	5,0 – 28,0		14,0	14,0	12,8	10,5	8,7	7,3	6,2	**5,3**	
50	4,6 – 29,5		14,0	14,0	13,7	11,3	9,5	8,1	**7,0**		
45	4,1 – 31,0		14,0	14,0	14,0	12,2	10,4	**9,0**			
40	3,6 – 33,5		14,0	14,0	14,0	13,4	**11,6**				
35	3,2 – 34,5		14,0	14,0	14,0	**13,8**					
30	2,7 – 30,0		14,0	14,0	**14,0**						
60											
55											
50	4,6 – 16,0	28,0 t	21,7	16,7	13,4	11,0	9,2	7,8	**6,7**		
45	4,1 – 16,5		22,7	17,6	14,3	11,9	10,1	**8,7**			
40	3,6 – 17,0		23,6	18,7	15,4	13,1	**11,3**				
35	3,2 – 17,5		24,4	19,3	15,9	**13,5**					
30	2,7 – 18,0		25,3	20,3	**17,0**						

Auslegerlänge (m) / jib length (m) / Longueur de fleche (m)

Tragfähigkeit (t) / load capacity (t) / Capacite de charge (t)

Typical Mobile Crane (will vary for demolition and tower crane operations)

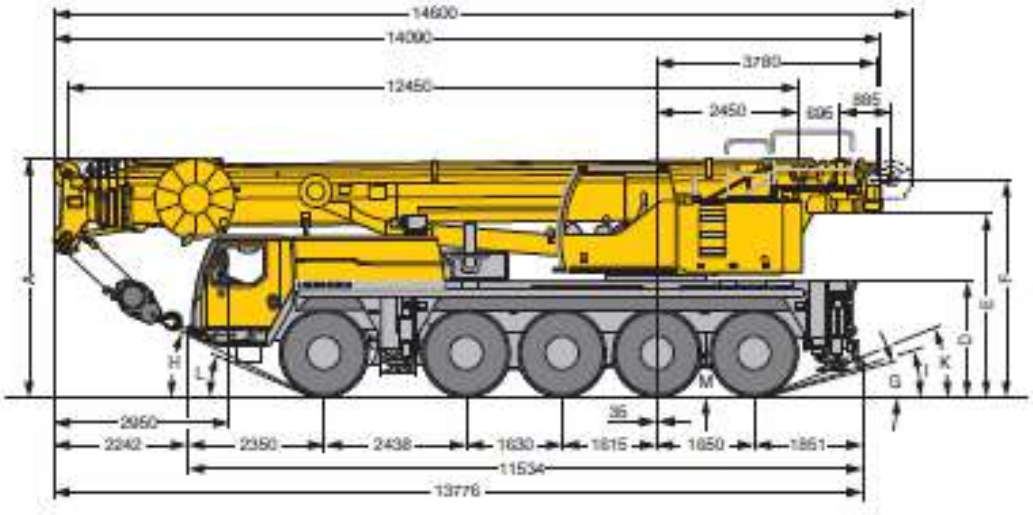
Mobilkran · Mobile Crane LTM 1095-5.1

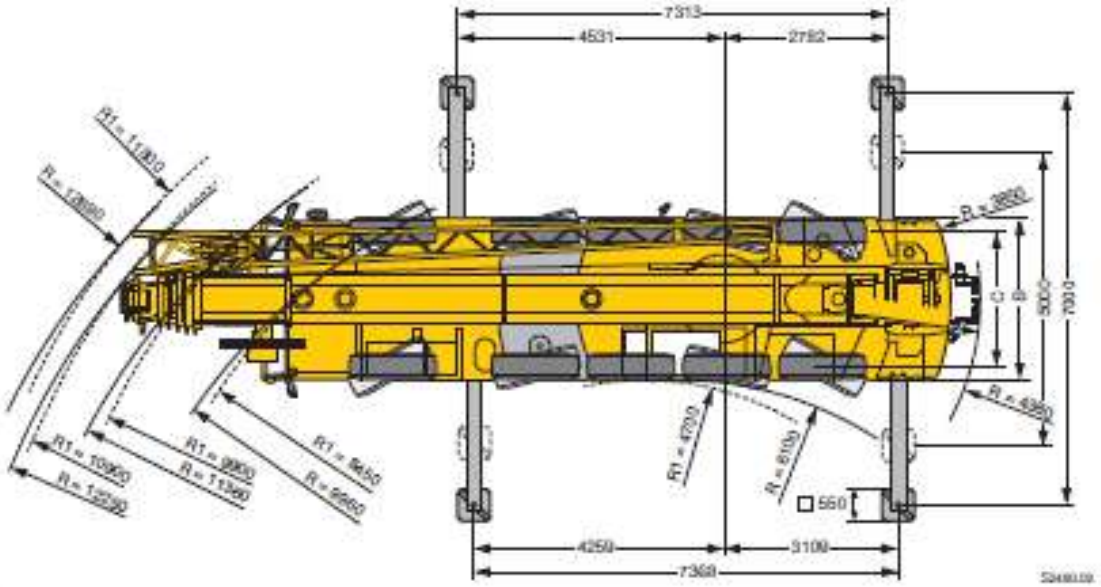
Grue mobile • Autogrù
Grúa móvil • Мобильный кран

Technische Daten • Technical Data
Caractéristiques techniques • Dati tecnici
Datos técnicos • Технические данные

LIEBHERR

Maße
Dimensions
Encombrement - Dimensioni
Dimensiones - Габариты крана





R1 = Abstellkurve - All-wheel steering - Direction toutes roues - Tutti gli assi sterzanti - Dirección en todos los ejes - Габарит радиуса разворота

Maße - Dimensions - Encombrement - Dimensioni - Dimensiones - Размеры mm

	A	A 100 mm*	B	C	D	E	F	G	H	I	K	L	M
385/95 R 25 (14.00 R 25)	3950	3850	2750	2350	1890	3035	3695	12°	23°	14°	19°	21°	378
445/95 R 25 (16.00 R 25)	4000	3900	2750	2300	1940	3085	3745	13°	25°	16°	20°	22°	428
525/80 R 25 (20.5 R 25)	4000	3900	2850	2320	1940	3085	3745	13°	25°	16°	20°	22°	428

* abgesenkt - lowered - abaissé - abbassato - suspensión baja - опущен

Gewichte
Weights
Poids · Pesi
Pesos · Нагрузки

Achse - Axle Essieu - Asse Eje - Мосты	1	2	3	4	5	Gesamtgewicht - Total weight t Poids total - Peso totale t Peso total - Общий вес, т
t	12	12	12	12	12	60[1]

[1] mit 15 t Ballast - with 15 t counterweight - avec contrepoids 15 t - con contrappeso di 15 t - con 15 t de contrapeso - с противовесом 15 т

Traglast - Load t Forces de levage - Portata t Capacidad de carga - Грузоподъемность, т	Rollen - No. of sheaves Poulies - Pulegge Poleas - Канатных блоков	Stränge - No. of lines Brins - Tratti portanti Ramales - Запасовка	Gewicht - Weight kg Poids - Peso kg Peso - Собст. вес, кг
80	7	14	500
58,4	5	11	500
36,3	3	7	450
16	1	3	300
5,7	–	1	140

Geschwindigkeiten
Working speeds
Vitesses · Velocità
Velocidades · Скорости

		1	2	3	4	5	6	7	8	9	10	11	12	R 1	R 2	
385/95 R 25 (14.00 R 25)	km/h	1,79 – 5,2	6,7	8,6	11,1	14	18,1	23,8	30,6	39,4	50,5	64,2	76	1,92 – 5,6	7,2	40 %
	km/h (slow)	0,78 – 2,3	2,9	3,8	4,8	6,1	7,9	10,4	13,3	17,2	22	28	35,9	0,84 – 2,4	3,2	> 60 %
445/95 R 25 (16.00 R 25) 525/80 R 25 (20.5 R 25)	km/h	1,94 – 5,7	7,3	9,4	12,1	15,3	19,7	25,9	33,2	42,8	55	69,8	80	2,09 – 6,1	7,9	43 %
	km/h (slow)	0,85 – 2,5	3,2	4,1	5,3	6,7	8,6	11,3	14,5	18,7	24	31,4	39	0,91 – 2,7	3,4	55 %

Antriebe - Drive Mécanismes - Meccanismi Accionamiento - Приводы	stufenlos - infinitely variable en continu - continuo regulable sin escalonamiento - бесступенчато	Seil ø / Seillänge - Rope diameter / length Diamètre / Longueur de câble - Diametro / lunghezza fune Diámetro / longitud cable - Диаметр / длина	Max. Seilzug - Max. single line pull Effort au brin max. - Mass. tiro diretto fune Tiro máx. en cable - Макс. тяговое усилие
	0 – 130 m/min für einfachen Strang - single line m/min au brin simple - per tiro diretto - a tiro directo м/мин при однократной запасовке	17 mm / 260 m	57 kN
	0 – 130 m/min für einfachen Strang - single line m/min au brin simple - per tiro diretto - a tiro directo м/мин при однократной запасовке	17 mm / 260 m	57 kN
	0 – 1,7 min⁻¹		
	ca. 60 s bis 82° Auslegerstellung - approx. 60 seconds to reach 82° boom angle env. 60 s jusqu'à 82° - circa 60 secondi fino ad un'angolazione del braccio di 82° aprox. 60 segundos hasta 82° de inclinación de pluma - ок. 60 сек. до выставления стрелы на 82°		
	ca. 390 s für Auslegerlänge 12,5 m – 50 m - approx. 390 seconds for boom extension from 12,5 m – 50 m env. 390 s pour passer de 12,5 m - 50 m - circa 390 secondi per passare dalla lunghezza del braccio di 12,5 m - 50 m aprox. 390 segundos para telescopar la pluma de 12,5 m - 50 m - ок. 390 сек. до выдвижения от 12,5 м до 50 м		

Hubhöhen
Lifting heights
Hauteurs de levage • Altezze di sollevamento
Alturas de elevación • Высота подъема

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