
CONSTRUCTION METHODOLOGY AND MANAGEMENT PLAN

JANUARY 2020

HIGHGATE SCHOOL: Richards Music Centre



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1.0 Executive Summary

Blue Sky Building was appointed to carry out a review of the construction programme and logistics for the and new construction of the Richards Music Centre project, on behalf of Highgate School.

This report considers the programme and logistics impact of the project. These proposals can be considered as a Construction Management Plan for inclusion in the Planning Application Submission and subsequently to form the basis of detailed Plans by Contractors when appointed.

The Richards Music Centre project involves the demolition of a two-storey building originally constructed as a school sports pavilion, and construction of a new three-storey educational building including a single storey basement. The new building provides drama classrooms, a double height Studio Theatre, offices, Cadet Armoury, and sports changing rooms with direct access to the existing synthetic all-weather pitch.

Programme Summary

Our Overall Summary Programme overleaf indicates a construction programme of 76 weeks or 19 months, preceded by 10 weeks of site establishment and demolition. Forecast durations are based on what we would consider a realistic delivery programme against which Highgate School might consider adding contingency in overall development planning terms and set shorter targets when procuring the works.

Our programme periods are based on the RIBA Stage 2 design currently available and will be subject to fluctuation as design develops.

General Deliveries

The site is relatively level and accessible, being on the periphery of the school sports facilities and not central to ongoing school activities. Access for HGV's is limited by the one-way restriction to Bishopswood Road. We understand that previous discussions with Haringey suggest they would accept a temporary traffic order to change priority to two way for the duration of the works. If granted that would improve access from the main roads in the area and help considerably to reduce disruption to neighbours.

Cranage & Logistics

Our proposals include a luffing jib tower crane to service the superstructure and envelope phases of construction. A suggested crane selection data sheet is included for information as an appendix. Tenderers should be encouraged to offer their own alternatives when bidding the project.

2.0 Constraints

Location

The Music Centre site is aligned with the Highgate School Sports Centre and is located on the east side of Bishopswood Road. The site is fairly remote from other school activities in comparison to other proposed school projects. The Music Centre building was originally constructed as a sports pavilion and faces the all-weather sports pitch.

The site is relatively flat with a direct frontage to Bishopswood Road. There are existing gates and a crossover to Bishopswood Road and an area of hardstanding between the building and back of pavement.

Behind the Music Centre to the south and east are private residential houses. The existing and proposed buildings are close to the boundary which is fenced and partly tree lined. Other close neighbouring buildings to the west and north are Highgate School teaching spaces and related facilities, including a temporary classroom block which will be sited on part of the all-weather pitch when the proposed works take place.

Bishopswood Road is designated as one-way southbound towards its T junction with Hampstead Lane, with only a cycle lane in the opposite direction. Parking is unrestricted and therefore congested.

There is space within school grounds, between the all-weather pitch and pavement, for vehicle turning and site accommodation to be accommodated.

Roads and Access Points

Bishopswood Road serves the east end of the site where vehicles can get off road onto a hardstanding. It is one way only from its junction with Broadlands Road and to access that point vehicles must use narrow parts of either Broadlands or Bishopswood Roads, congested with residential parking. A more direct route for HGVs to and from the TLRN would be to invoke a Temporary Traffic Order (TTO) to allow site traffic to enter from Hampstead Lane which we understand has been discussed with LBH. Using that route would cause far less nuisance to local residents.

The lack of parking restrictions on Bishopswood (except for the school entrance clear zone for Highgate Junior School opposite the site) makes the road a popular parking zone for people working and visiting the area. Parked cars narrow the road to a single lane and causes restriction to turning vehicles. The single cycle lane in the opposite direction can easily be obstructed as a result.

Neighbours

The site is bordered to east and west by residential property, the Highgate Junior school on the opposite side of Bishopswood Road and temporary classrooms on the all-weather pitch. Noise and dust control during the works will be key, including management of hours for noisy operations during recognised quiet times. Neighbours in the further reaches of Bishopswood Road and in Broadlands Road would be subject to traffic nuisance unless a TTO can be agreed as previously mentioned.

Pedestrians

Bishopswood Road is not heavily trafficked by pedestrians, except for school use, the extent of which should not be adversely affected by these works. Pavements both sides of the road should be kept open throughout the works with traffic marshalling and temporary barriers employed during vehicle movements.

Concurrent Construction Projects

There are no large construction projects known to be proceeding in the area currently. The contractor will be required to keep local planning applications under review and to liaise with other contractors regarding logistics planning and delivery routes where appropriate.

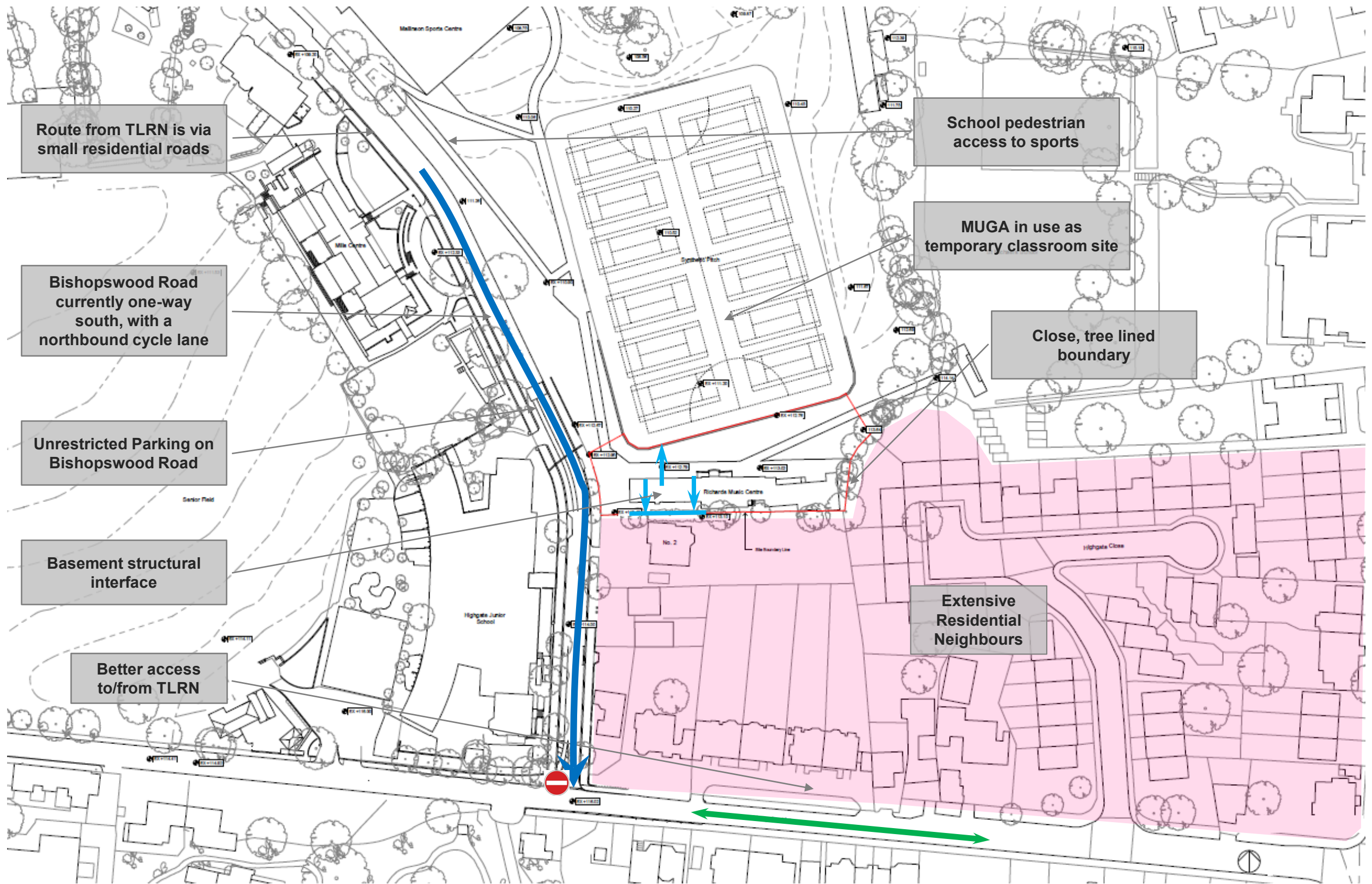
Existing Building

The existing single storey building will be demolished in entirety. It is expected that normal levels of Asbestos Containing Materials will be present for a building of this age, although much may have been removed under previous refurbishments. A full R&D survey will be undertaken when the building is vacated.

The structural characteristics of the building also remains subject to survey, but it is intended that as much concrete and dense masonry as possible can be initially retained on site for construction of a piling platform.



Please refer overleaf to drawing BSB-RMC-003 - Constraints



3.0 Logistics

Materials Deliveries and Cart Away

The efficient management of the site logistics will be vital to the success of the project. A key strategy of logistics for a construction project is to ensure that the products and materials arrive on site at the required time, in the quantities that are required, and that delivery and distribution can be managed efficiently. The same can be said for removal of volume materials including demolition waste and bulk excavation.

The Music Centre site is relatively straightforward logistically. It is flat and has access from Bishopswood Road which will be improved if the previously mentioned TTO can be obtained for two-way access. The depth of site back from the road together with the formation of the basement over a large area of the site, with suspended slab at ground level, creates some minor limitations on material movements.

We have proposed an approach to logistics that reflects the site constraints and the basement. A single tower crane is envisaged to provide coverage for superstructure and parts of the envelope, to be replaced by a platform hoist for completion of the envelope and then the fit-out works, until the permanent lift is available.

Crane Strategy

A single luffing jib crane is proposed. The crane is needed for site coverage to support construction of the superstructure and initial elements of the envelope and to assist in the movement of materials from front to back of the site over the suspended slab that forms the lid of the basement.

It would be a luffing jib crane erected in the drama foyer area of the basement. That space is reachable within 30m from the frontage for a mobile crane to erect it. The crane we have selected has a 40m jib to allow a good reach to the furthest corners of the new basement with a 2.5-tonne lifting capacity at full reach. That capacity provides a good level of coverage for concrete frame construction and general material movements. When the design is further developed the contractor should make further assessment of the likely heaviest lifts to ensure a suitable capacity crane. The crane has a luffing jib to ensure oversailing of neighbouring properties can be omitted by computer limiting.

The tower crane would be erected by mobile crane from the frontage on Bishopswood Road, which might be achieved without a road closure (subject to survey). The dismantle process would be a reverse procedure. The construction and location of the attenuation tank will need to be considered when positioning the mobile crane. A suitable crane would be a Jaso J118HPA and a specification sheet is included in the appendix for reference.

Welfare

Welfare accommodation would be established in the space between the all-weather pitch and Bishopswood Road. Cabins would be sized for the minimum of disruption in transporting them into site and positioned

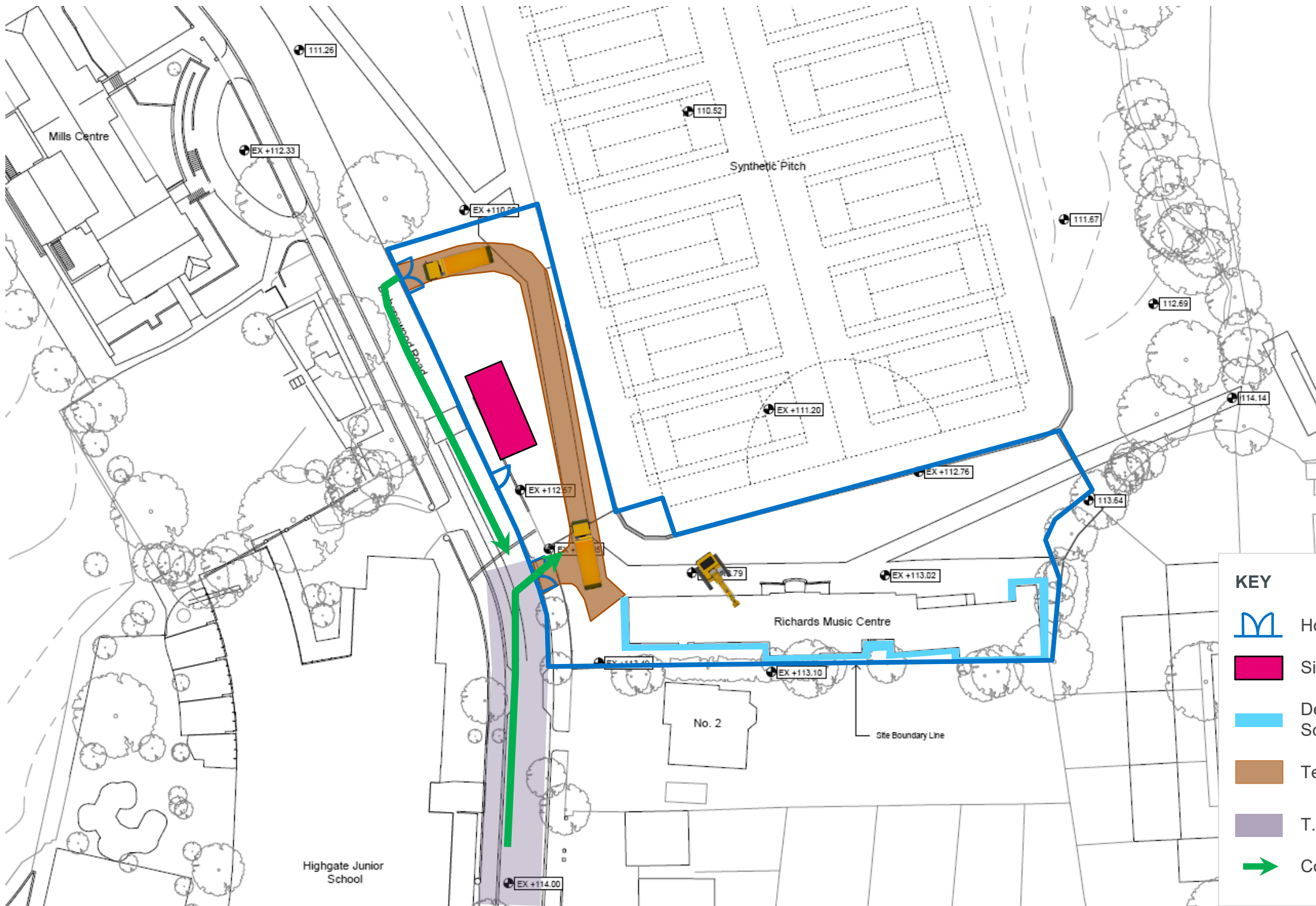


Key Materials Movements

Element	Number/ Type of delivery	Heaviest Lift	Key Constraints	Likely Method
Site Establishment				
Welfare	Cabins	c 2 tonne	Largest units that can be accommodated on the approach roads	Jackleg units sized to negotiate Bishopswood Road and the entry gate. Small mobile crane needed to offload and stack units.
Scaffolding	Multiple deliveries of tube and boards.	Small	Vehicle	Deliver and offload using Hiab. Distribute by hand/ forklift/ pallet trolley.
Tower Crane	Occasional. Disruptive events.	Major lifts	Crane can only be delivered and erected from Bishopswood Road and may require weekend road closures for erect and dismantle subject to survey.	TC erected by mobile crane from Bishopswood Road/ gate hardstanding. Road closure may be needed unless mobile can be configured inside the boundary. There is sufficient space inside the site boundary for jib assembly.
Platform Hoist	Small plant and equipment delivery and erection	1 Tonne	Vehicle access.	Base unit delivered and offloaded by Hiab
Asbestos unit (if required – subject to survey)	Trailer unit	Small	Vehicle access	Small trailer unit can be located at west end of building, clear of gate.
Demolition & Stripping Out				
Soft strip/ screeds & asbestos waste	Multiple moves of debris, timber and metal components, glass, general rubbish.	Small	Vehicle access.	Locate large roll on roll off skips on Bishopswood Road frontage. Move stripped materials by hand, or small machine and hand fill skips.
Roof level materials	Multiple items of roof materials and debris.	Depends on material	Vehicle access	Hand strip materials, send to ground via chute or hoist for loading away by hand to skips for sorting and disposal off site.
Facades	Multiple loads of masonry debris and windows	Small	Vehicle access	Load to skips on frontage. Any suitable material to be crushed on site for use in piling mat.
Concrete Elements	Multiple loads of concrete debris and rebar	Small	Vehicle access	Break out with excavator and crush as above.
New Sub-Structure				
Sheet piling/ Bored Piling	Rig for boring, sheet piler then multiple deliveries of sheets, concrete and rebar plus removal of muck away	Small/ numerous	Vehicle access	Deliver rig from Bishopswood Road, ramp down to piling level or crane lift. Sheet piling machine delivered to frontage and lifted by mobile crane. Pump concrete from front. Conveyors for muck away to skips or tipper lorries.
Excavation	Constant volume earth moving	Medium	Vehicle access	Load material directly to tippers on frontage.
New concrete frame	Multiple slab pours	Formwork & rebar	Vehicle access	Ready mix concrete delivered to site frontage for placement via pump and boom. Formwork and re-bar delivered to frontage for TC offloading and placement.

Element	Number/ Type of delivery	Heaviest Lift	Key Constraints	Likely Method
New Superstructure				
Scaffold	Traditional scaffold as access and edge protection	Multiple	Vehicle access	Deliver to front for TC offloading.
Stairs	Consider design for best materials handling	Heavy if pre-cast stair proposed	Vehicle access	Traditional formwork and pumped concrete in-situ stairs. If precast units are proposed, then size of crane to be checked for heavier lift
Larger components	Steelwork? Framing? Prefabricated enclosures?	Limited opportunities	Vehicle access	Design for traditional methods and components within TC capacity
Building Envelope				
Perimeter wall inner skin	Consider Metsec, or similar panelised skin	Multiple lightweight	Vehicle access	Deliver to front for TC offloading.
Brickwork & internal block work	Multiple deliveries	Small/ Medium	Vehicle access	Deliver to front for Hiab/ forklift unloading and distribution.
Roofing Materials	Multiple deliveries	Small/ Medium	Vehicle access	Deliver to front for TC offloading.
Curtain wall/ glass	Multiple deliveries	Mostly medium but large glass units to some location	Vehicle access	Deliver to front for TC offloading.
Windows,	Multiple deliveries	Small/ Medium	Vehicle access	Deliver to frontage on rigid lorry for TC offloading.
Mortar	Daily deliveries of ready mixed mortar tubs during blockwork and brickwork operations	Small	Vehicle access	Delivery by small vehicle for distribution by forklift and platform hoist
M&E Plant / Fit Out				
Plant & Switchgear to basement	Several large deliveries	> 1 Tonne	Vehicle access	Plant to be sized for best handling, including plant replacement strategy.
Lifts	New lifts to install. Multiple deliveries including long pieces	Medium. 1-2 tonnes max	Vehicle access	Design in sections that can be offloaded by Hiab and distributed by lifting beam and platform hoist.
Plant	Plant to roof	Small	Vehicle access	Ensure delivery before TC is dismantled.
Internal fitting out/ general materials	Plasterboard, M&E components, flooring, ceiling, etc. Multiple deliveries.	Small	Vehicle access	Deliver by small vehicle directly into site for distribution by pallet truck and platform hoist. Use hoist and cranes as far as possible. Load out floors as early as possible and subject to weathertight conditions to make full use of the external platform hoist or TC. Keep platform hoist until permanent lifts are available – then allow beneficial use.

Logistics Plans – please refer overleaf to the Site Logistics Plans.



KEY



Hoardings & Gates



Site Accommodation



Demolition Scaffold/
Screen



Temporary Haul Road



T.T.O. for 2-Way Traffic



Construction Traffic



PROJECT:

CLIENT:

TITLE:

Richards Music Centre

Highgate School Estate

Logistics – Demolition & Substructure

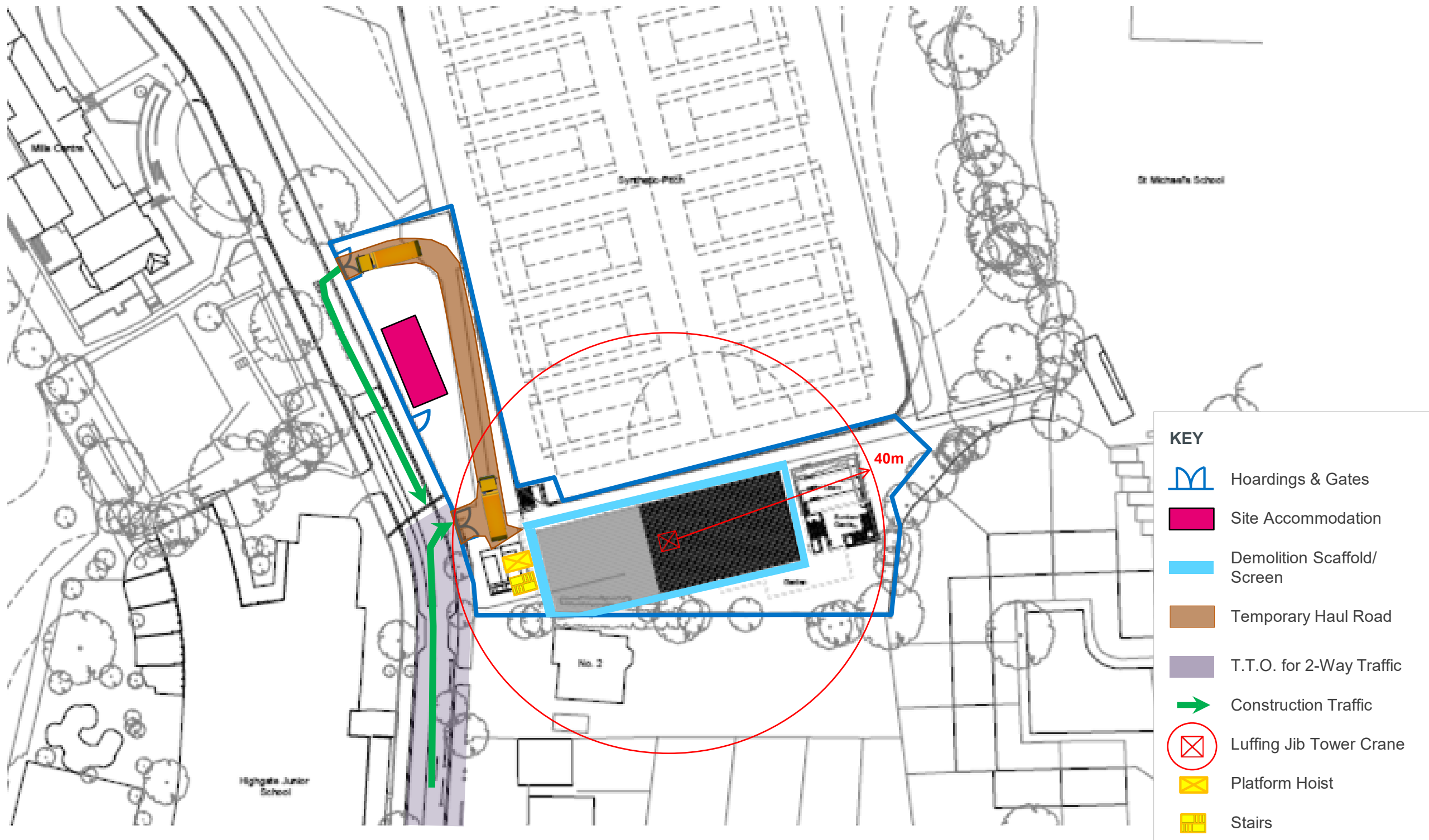
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REVISION NO. & DATE:

BSB-RMC-001

Rev 0 – 09/12/2019

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PROJECT: Richards Music Centre
CLIENT: Highgate School Estate
TITLE: Logistics – Superstructure & Envelope

DRAWING NO.: BSB-RMC-002
REVISION NO. & DATE: Rev 0 – 09/12/2019

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4.0 Programme

Pre-Start Activity

We have assumed that the best time to vacate the existing building would be at the end of a school year so have shown decant and start of construction commencing through the summer holiday. The school will need some time to decant school property before handing over spaces to the contractor.

Prior to starting on site, the contractor would have a mobilisation period during which permissions and arrangements should be put in place with Haringey and TfL, and neighbourhood liaison should take place to provide detail to neighbours on how the works will be executed. This would include making arrangements for the TTO for two-way traffic on Bishopswood Road, unless a prior application can be made before the contractor is appointed. LBH will require a lengthy consultation period for processing an order and a minimum of six months application time can be expected.

A full R&D asbestos survey should be undertaken as soon as the building is vacated, and full access is available. Some initial opening up of the fabric will be required to ensure the survey is thorough. If this can be undertaken early the licence application process can run in parallel to the off-site mobilisation period to allow an efficient start to asbestos removal early in the on-site period.

Early Works

Early enabling works will include making the site safe and secure with solid secure hoardings and gates onto Bishopswood Road. It is proposed to take an area of school landscape parallel to Bishopswood Road into the site to create a turning space for vehicles and a site welfare area. Therefore, the construction of hoardings and gates will involve some removal of railings to create a second gate, constructing a new crossover, the existing crossover to be improved or widened if required and the construction of a temporary haul road inside the boundary.

A solid timber hoarding and gates should be erected inside the fence line to the south and east to screen the working area from residential property and to assist in the containment of noise and dust.

Hoardings may need to extend to include tree protection to key species. Tree protection measures for roots and canopies would be identified before commencement and put in place, including any pruning or maintenance.

Site accommodation would be established in cabins alongside Bishopswood Road (subject to suitable drains being available). Site services for the works should involve taking power and water supplies from existing services in the vicinity (in preference to using generators and bowsers).

Stripping Out & Demolition

A “soft stripping” exercise clears the building of all fixtures, fittings and services, leaving only bare structure to remove. This will include the pitched roofs, windows, doors and all timber floors and framing. As the insides of building is stripped, mostly by hand, waste materials will be loaded to large skips. Scaffolds will be erected to the perimeter of the building to create to allow the stripping of windows and roofs. Scaffolds will be clad externally in Monarflex sheet to help limit dust and noise breakout.

When the soft strip is complete the hard demolition can proceed. The building will be demolished down to ground level by a 360° excavator fitted with appropriate shear and grapple attachments. The scaffold will be adapted to be free standing with sections removed for access by the machine.

Waste arising from hard demolition, including concrete and dense masonry will be crushed on site and stockpiled for use in piling mat construction (subject to assessing its quality and density). Rebar will be separated from the concrete debris and removed as scrap for recycling. When the building is cleared the ground slab and foundations will be grubbed out and pile probing undertaken for the new sheet piled perimeter.

Substructure

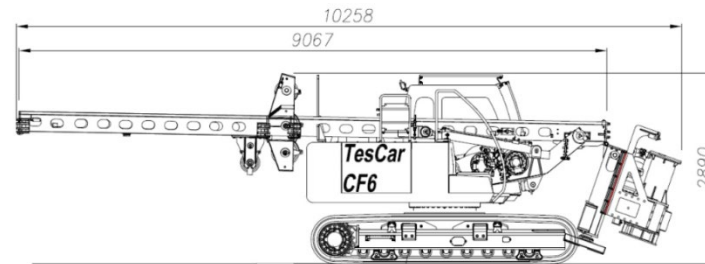
Sheet piling would ideally be carried out using a hydraulic pile jacking machine as manufactured by Giken or similar. The machine would be supported by a small mobile crane and once initial piles are in will “walk” along the piles already placed. Piling in this way negates the need for a level piling mat for a traditional piling and is a quieter solution than alternatives.

Piling would proceed from the back of the site, working towards the road. The concrete capping beam would be excavated and constructed following the pile progress and would be used for temporary propping when excavation gets underway.

Bulk excavation arisings will be loaded directly to waiting tippers. Excavation will proceed down to formation level and a piling platform laid using compacted demolition arisings, augmented with additional imported material. Ideally the piling rig would be delivered during the final stages of excavation and driven down a ramp into the basement level. Alternatively, it would be craned into the basement excavation.



To pile from this formation level requires a restricted access rig that can be moved between propping zones which will need to be carefully designed to fulfil propping duties and to allow piling to proceed. We have identified the Tescar CF6 Rig as suitable for site access from Bishopswood Road, able to produce 650mm diameter CFA piles and having a two-section mast for manoeuvrability. Its transport weight is 18T so it could be lifted in and out of the excavation by a 50T crane on the hardstanding at the west (gate) end of site.



Piling will be carried out with the support of a small mobile crane and/or excavator. Early piles would include temporary piles for construction of the tower crane base and crane erection would be carried out as early as possible to improve efficiency of the substructure operations. Once the crane is in place arisings will be lifted by crane and skip to waiting tippers on the frontage and concrete pumped from the same area.

When the piling and bulk excavation is complete the formation level can be prepared with under slab drainage, pile caps and tanking ready for slab casting.

Superstructure

The structure will then continue to rise using traditional RC concrete techniques to construct columns, slabs, walls and liner walls. The demolition and forming of the stair connection through to the all-weather pitch may need to be planned around a school break to limit potential disruption to the school timetable. The works will be serviced by the tower crane with concrete being pumped from the frontage.

The glulam roof structure will follow completion of the concrete elements, erected by tower crane.

Building Envelope

The inner skin would best be constructed using a Metsec (or similar) SFS system constructed with windows sealed into it in order to secure the earliest watertight date for internal fitting out to proceed.

The design includes some large glazed units the delivery of which will need to be carefully planned for handling. Consideration should also be given to future glass replacement strategy.

Brickwork is likely to be traditionally hand laid from external scaffolds. Mortar would either be site mixed from storage silos or delivered daily in premixed tubs, distributed round the site by tower crane or hoist.

As the envelope trades near completion the tower crane will be removed, and the structure made good and weathered.

Fitting Out

Plant installations should be planned to make good use of the tower cranes while in position, then risers and horizontal services distribution would follow, generally working away from the plant areas.

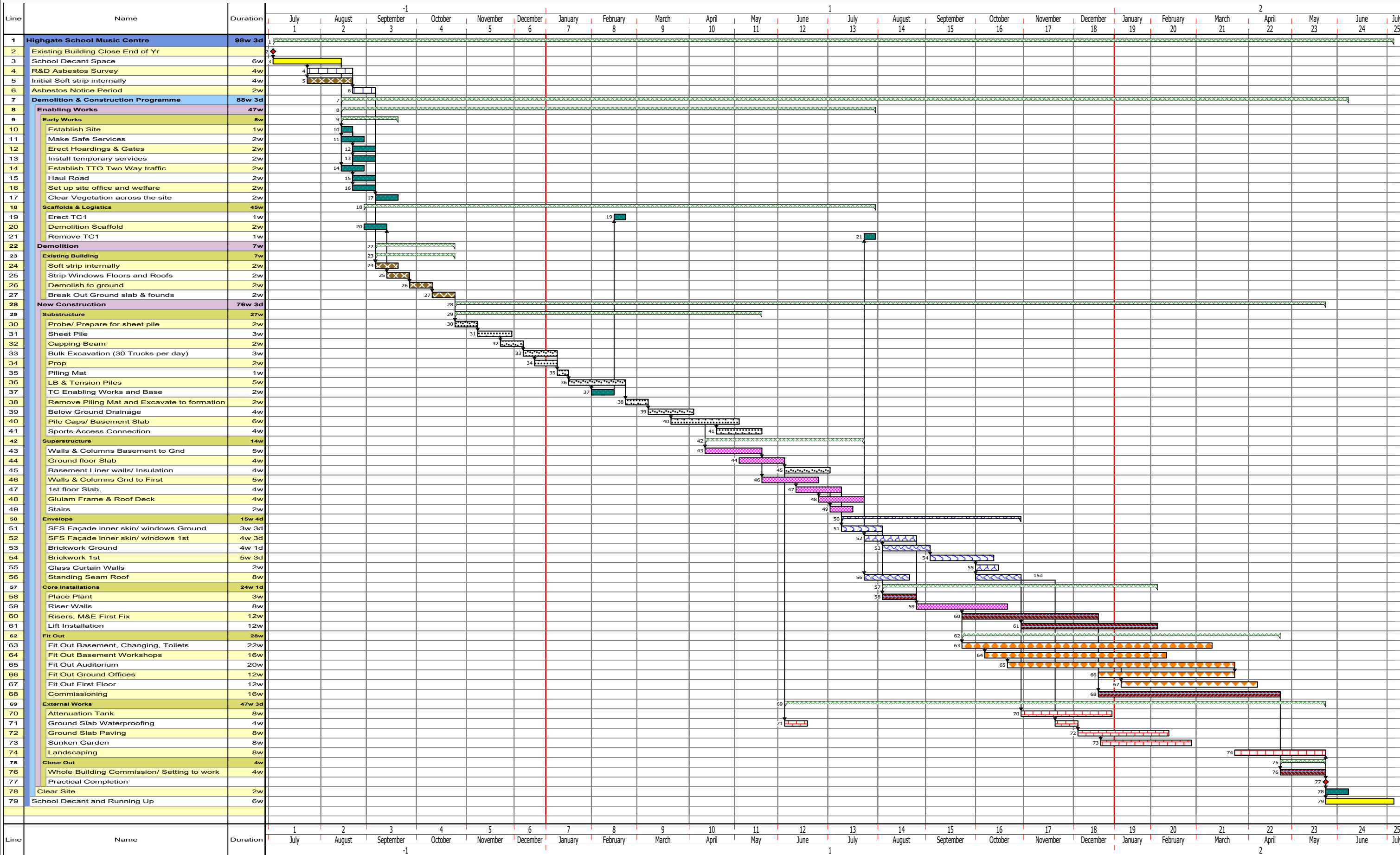
External platform hoists will serve as material distribution for fitting out after removal of the tower crane. Permanent lifts should be targeted for early completion and beneficial use, allowing external hoists to be removed and facades to be closed.

External Works

Early waterproofing of the ground level slab would enable internal works to proceed, with a protective layer in place. Then completion of finishes to the slab would follow completion of facades when scaffolds have been removed. Hard and soft landscaping will then be progressed around the building including reinstatement of the haul road and welfare areas.

Construction Programme – please refer overleaf to the Construction Programme.

Highgate School. Richards Music Centre
Construction Programme



Programme :Highgate School. Richards Music Centre
Drawn by: TJC

Client: Highgate School
Page: 1 of 1

Notes: Draft for Discussion

Revision No. 0
Revision Date: 07/01/2020

5.0 Risks and Mitigation

KEY RISKS / ISSUES	MITIGATION
Structure	
Basement perimeter and foundation design (sheet and CFA piles) and rig access to the site	Piling specialist input at an early stage to ensure the design is matched to a rig size and methodology that works with the site access
Excavation plant and accessibility for excavation of basement	Provide multiple materials handling methods for peak movements – crane and skip, hoists, conveyors.
Temporary works loadings for ground retention at boundary and interface with MUGA during basement construction	Establish loading constraints with Engineer prior to tender returns. Ensure tenderers have a workable solution in their returns.
Below ground services delay substructure construction	Early identification of works required with intrusive surveys undertaken as necessary and TW approvals.
Superstructure	
Construction approach is based on single tower crane.	Ensure clarity of site constraints in tender documents. Contractor to submit methodology with tender.
General	
Full consideration of on-site, school and public health and safety at all stages of planning and execution.	Detailed risk analysis of site operations.
A strategy to minimise disruption to the school, local environment and adjoining properties/ owners.	Positive approach to neighbours – newsletters/site talks.
A methodology to secure the highest quality.	Samples/mock-ups prepared in advance and signed off.
Full consideration of both site and public health and safety at all stages of planning and execution	Detailed risk analysis of site operations
A realistic preconstruction period which provides the best input to the Client and Design Team	Ensure strategic programme and procurement route allows sufficient time to coordinate all aspects of the project
Provide above industry average facilities for the workforce	Make the site attractive to the workforce. Attract best tradesmen
Safe segregation of M&E services between site and occupied school areas	Early surveys and identification of services. Safe system of work throughout demolition and construction phases.
Multiple phases could be procured singly, for economy of scale but subsequent delays between phases could then be expensive	Consider procurement routes and include cost options or escape routes from contracts

KEY RISKS / ISSUES	MITIGATION
Logistics / LBH & Neighbours	
Demolition and piling impact for noise and general disruption to neighbours and school functions.	Contractor to ensure environmental monitoring is in place and a robust demolition plan is agreed with LBH and neighbours.
Works to other school projects overruns or clashes leading to delays or pressure on temporary classrooms	Early alignment of programmes. Contingency plan for late works.
Hours of Work conflict between LBH, neighbours and school.	Beware conflicting desires for noisy work times. Contractor to ensure pre-agreement before finalising programme.
TTO for two-way traffic not agreed	Make application in good time before commencement and consider alternative vehicle routing as a contingency plan.
Welfare location clashes with school wishes	Make a contingency plan for the project that meets programme strategy and dates
Oversailing agreements restrict crane operations	Review crane positions and make early approaches to neighbours if required
School Access impacted by construction	Early agreement of delivery strategy with school and regular review with contractors
Continuity of Building Services to school and neighbouring property.	Ensure before services are terminated that all systems I are truly separated and will continue to function.
Construction deliveries too disruptive or dangerous to ongoing school activities and movements	Agree vehicle slots for school use separately to contractor. Agree phased parameters of closing in hoardings with due attention to CDM requirements.

6.0 Traffic Management

Access routes

TfL prefer that construction traffic uses the TLRN (Red Routes) as far as possible to get to sites. Normal access to the one-way section of Bishopswood Road would require vehicles to traverse Bishopswood Road. To avoid that a TTO to allow two-way traffic as far as the site entry point.

Site traffic would leave the TLRN at the A1 Archway Road although approach via North Hill (B519) into Hampstead Lane (B519) as shown on the right. Vehicles leaving site will re-join the TLRN by the reverse route.

Access routes to and from the site to be used by heavy goods vehicles (HGVs) will be agreed with TfL and Haringey Borough Council prior to initiation of the demolition and construction programme, to minimise disruption to the road and pedestrian network. At this stage we don't know which direction specific traffic will approach from but that will become clearer once the materials are better known and ultimately when a contractor is able to place supply orders.

The logistics approach in this document uses as little kerbside loading as possible. Vehicles arriving at site would turn directly into site for loading and unloading. All movements would be under the control of marshals throughout.

Vehicle Management

The number of lorry movements, hours of operation and any lorry holding areas will need to be agreed in advance with TfL and Haringey Borough Council.

Where possible all delivery and waste removal vehicles should be planned to be between the hours of 09.30 and 15.30 hours to avoid the peak periods.

No vehicle waiting will be permitted in neighbouring streets. Vehicles will only deliver in accordance with their allocated slot, booked through a Delivery Management System.

Delivery companies and suppliers will be required to be registered with FORS. CLOCS compliance will be a contract requirement.

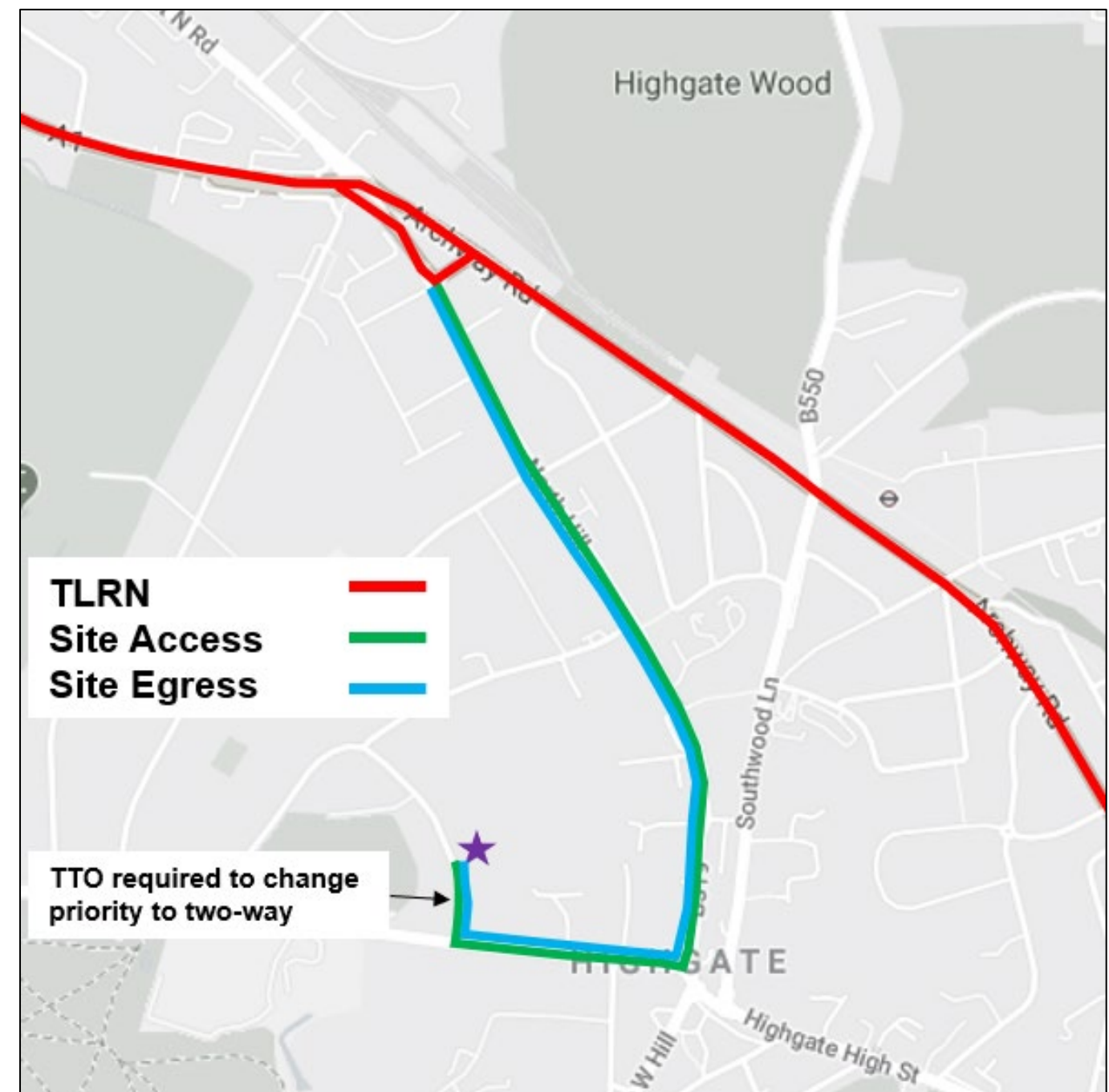
Copies of registration documents for regular / repeat vehicles will be held on site and will be available for inspection.

All suppliers should be notified of the requirement in supply orders and a log of vehicles held on site. Non-compliant vehicles should not be permitted entry.

Operatives Journeys to Work

Operatives should be encouraged to come to work by public transport or cycle. No parking will be permitted on site for operatives or staff.

Bicycle parking and showers should be provided on site



7.0 Waste Management

Site Waste Management

The Contractor will use working methods that minimise waste. Any waste arising from the site will be properly categorised and dealt with in accordance with appropriate legislation.

Opportunities for re-using or recycling construction or demolition waste should be explored and implemented.

The Contractor will carry out the works in such a way that, as far as is reasonably practicable, the amount of spoil and waste (including groundwater, production water and run-off) to be disposed of is minimised.

The disposal of all waste or other materials removed from the Site will be in accordance with the requirements of the Environment Agency, Control of Pollution Act (COPA), 1974, Environment Act 1995, Special Waste Regulations 1996, Duty of Care Regulations 1991 and the Waste Management Regulations 2011.

In general, and in accordance with the principles of the UK Government’s ‘Waste Strategy 2010’, a principal aim during demolition and construction will be to reduce the amount of waste generated and exported from the Development site.

This approach complies with the waste hierarchy whereby the intention is first to minimise, then to treat at source or compact and, finally, to dispose of off-site as necessary. All relevant Contractors will be required to investigate opportunities to minimise and reduce waste generation, such as:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.
- Implementation of a ‘just-in-time’ material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste.
- Attention to material quantity requirements to avoid over- ordering and generation of waste materials.
- Re-use of materials wherever feasible (e.g. re-use of crushed concrete from demolition for the piling platform; re-use of excavated soil for landscaping).
- The Government has set broad targets of the use of reclaimed aggregate, and in keeping with best practice, Contractors will be required to maximise the proportion of materials recycled.
- Segregation of waste at source.
- Re-use and recycling of materials off-site where re-use on- site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re- processing). Our expectations in this regard are shown in the table opposite.

The Contractor’s CEMP is to include the full environmental management requirements and Site Waste Management Plan.

Material	Target	Probable Location
Architectural salvage	100% re-used	Several architectural salvage companies in London.
Metals	100% recycled	Every effort will be made to recycle these materials on site with any surplus being taken to waste transfer station.
Hardcore (brick/block/concrete etc.)	100% recycled	To be crushed on site and reused in the piling mat and used as inert fill after removal from site.
Excavated material/clay etc.	100% recycled	100% processed for re-use as fill (subject to analysis).
Timber	Up to 85% re-used The amount re-used will depend on the material	We will attempt to salvage any re-usable timber for hoardings, battening, shuttering etc. for possible use on site with the balance being retained by the Contractor.
Mixed waste	The amount recycled will depend on the material	An absolute minimum will remain for transport to landfill.
Asbestos	100% landfill	Taken to a licensed site.

8.0 Noise & Dust Mitigation

The Contractor will monitor and control levels of noise and vibration from the site.

Measures for reducing such levels are set out of this section. A prior approval via Section 61 of the Control of Pollution Act 1974 is proposed.

Noise Control

The Contractor's environmental team will undertake a noise assessment using noise-predicting software that projects noise levels at adjoining properties based on the emissions made by specific equipment. This noise assessment will be carried out in accordance with BS5228-1: 2009+A1: 2014 'Code of Practice for noise and vibration on construction and open sites'.

This assessment allows the Contractor to select the most appropriate plant, methodology and controls to minimise disruptions of buildings at close proximity of the adjacent structures (sensitive receptors) and in particular the neighbouring residents, during the demolition and structural work phases.

Noise levels will be monitored by the Contractor during the course of the works. Haringey Borough Council shall be given access to all noise readings if required as soon as they become available.

Although the noise levels to be included in a formal agreement between the Contractor and Haringey Borough Council are the maximum to be allowed, at sensitive locations the Contractor will be requested to achieve, where practicable, noise levels lower than the specified limits.

Noise Control Provisions – Screens and Scaffolds

Throughout the demolition and structural stages all works will take place behind an encapsulation scaffold clad in fire rated Monarflex sheeting (or similar). The encapsulation scaffold provides the following benefits during the demolition construction stages of the works:

- It acts as a visual screen hiding the on-going works.
- Dust arising will be contained.
- With the use of the sheeting, (and the addition of acoustic blankets near particularly sensitive locations) noise is contained.

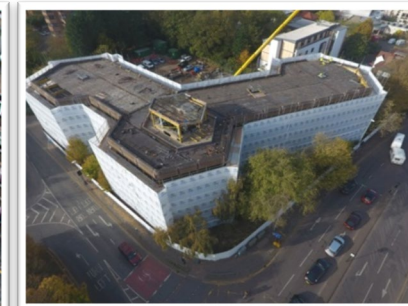
The encapsulation scaffolding will be erected before any of the demolition works commence. The scaffold will then be struck progressively in line with the demolition sequence, remaining one lift above the working floor throughout the demolition works.

Vibration Control

The measures taken to reduce the acoustics of these operations will assist in mitigating the effects of vibration on neighbours, their property and the existing building to be retained.

A digital seismograph measuring device will be used to measure the amount of vibration produced during these works. Where elevated levels are recorded the source will be investigated and, where possible, alternative techniques employed to reduce the levels.

The Contractor will comply with the vibration levels established by agreement with Haringey Borough Council.



Monarflex Encapsulation Scaffold

Air Quality

The Contractors will, as far as reasonably practical, seek to control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from tools and equipment used on site and dust from construction activities.

The site activities will be assessed for the control of dust & emissions during construction & demolition. The contractors must submit a statement to Haringey Borough Council for approval identifying proposed dust control measures before work starts. Special precautions must be taken when materials containing asbestos are encountered.

Throughout the project, the Contractor will ensure the following:

- Where potential dust producing activities are taking place, the screens remain in position. This will include all demolition, piling, excavation and structural works.
- There is no burning of waste materials on site.
- There is an adequate water supply on the site.
- Disposal of run-off water from dust suppression activities and cleaning is in accordance with the appropriate legal requirements.
- All dust control equipment is maintained in good condition and record maintenance activities.
- Strip inside of the building before any demolition of the structure and envelope.
- Site hoarding, barriers and scaffolding are kept clean.
- Loading of material into lorries within designated loading area.
- If necessary, clean public road and pavement using wet sweeping methods.
- All vehicles carrying loose or potentially dusty material to or from the site are fully sheeted.
- Minimise the amount of demolished or excavated material held on site.
- Sheet, seal or damp down unavoidable stockpiles and skips of material held at site, where required.
- Avoid double handling of material wherever reasonably practicable.
- Ensure water suppression is used during demolition operations.
- Use enclosed rubble chutes and conveyors where reasonably practicable or use water to suppress dust emissions from such equipment.
- Sheet or otherwise enclose loaded bins and skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Use prefabrication of goods and materials to reduce the need for grinding, sawing and cutting on site wherever reasonably practicable.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction.
- The engines of all vehicles delivering to site are not left running unnecessarily to prevent exhaust.
- That conveyor equipment will be well maintained, with regular servicing and maintenance carried out.
- The Contractors will ensure that dust monitoring will be carried out during potential dust producing activities. The assessment will look at the dust raising potential of construction activities proximity to potential receptors and the duration of construction activities at each location.
- No materials produced as a result of the site development or clearance shall be burned on site.

APPENDIX: Tower Crane datasheet

GRUA TORRE / TOWER CRANE
GRUE A TOUR / BAŞEKLİ KRAH
كُرَّة بَرَجِيَّة / KULE VINÇ

J118HPA

CE EN 14439 C25 UNE-EN-ISO 9001

H Máxima altura de torre sin anclaje (m). Maximum tower height without fastening (m). Hauteur maximale de tour sans ancrage (m). Maksimum binaş boyunu başıncı des krenovus (m).
D Distancias fuera de servicio dependen de la altura de la torre / Out of service distance depend on tower height / Distances hors service dépendent de la hauteur de la tour /
 Paccmošue B noipe sasucum om sucomai başıncı / Odległość dnie dłużej zależy od wysokości wieży

H (D_m)

(H) TRASLACIÓN / TRAVELLING /
 TRASLATION / TEPEMEŞİLEME / RAY YÖRÜYÜŞÜ / انتحركة

(H) ESTACIONARIA / STATIONARY /
 STATIONAIRE / CT ALJAHAYHOE DOCTOYHME / SABIT / ثابتة

H (D_m)

(H) TRASLACIÓN / TRAVELLING /
 TRASLATION / TEPEMEŞİLEME / RAY YÖRÜYÜŞÜ / انتحركة

(H) ESTACIONARIA / STATIONARY /
 STATIONAIRE / CT ALJAHAYHOE DOCTOYHME / SABIT / ثابتة

Fecha / Date: 20/01/2016 FEM 1005 - C25

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 Mu otkazivanju na otkazivanje bez odgovornosti / Önceden bildirilmeksizin değiştirilme hakkı saklıdır. Verilen bilgiler için hiçbir sorumluluk kabul etmemizleyle
 حقوق التغيير محفوظة دون إشعار مسبق. دون أدنى مسؤولية عن المعلومات المقدمة

CARGAS / LOADS / CHARGES / НАГРУЗКИ / YÜKLER / الأحمال **J118HPA**

SR / DR (kg)

Alcance del gancho [m] / Hook reach [m] / Portée du crochet (m) / Радиус действия крюка (m) Kancanın yüksekliği (m) / مدى الخطاف	SR 3000 kg @ (m)		SR 2500 kg @ (m)				
	20	25	30	35	40	45	
45 m	33,1	3000	3000	3000	2780	2235	1600
40 m	37,3	3000	3000	3000	3000	2500	---
35 m	22,7	35	3000/6000	3000/5435	3000/4425	3000/3400	---
30 m	25,1	30	3000/6000	3000/6000	3000/4800	---	---

CARACTERÍSTICAS DE MECANISMOS / MECHANISMS FEATURES **J118HPA**

CARACTÉRISTIQUES DES MÉCANISMES / ХАРАКТЕРИСТИКИ МЕХАНИЗМОВ / MEKANİZMALARIN ÖZELLİKLERİ / الخصائص الآلية

Optional / optional / ten option / option / option / اختياري

EC2556VF 18,4 kW

***EC3380VF 24,2 kW**

3 t ... 28 m/min
1,5 t ... 56 m/min

3 t ... 40 m/min
1,5 t ... 80 m/min

6 t ... 14 m/min
3 t ... 28 m/min

6 t ... 20 m/min
3 t ... 40 m/min

H ≤ SR 452 m
DR 226 m

400V 50Hz

TG825VF 2x3 kW **OG708VF 5,5 kW** **EPH2015VF 15 kW** **TH151 11 kW**

0...25 m/min **0...0,8 m/min** **1,5 m/min** **1 m/min**

P_{TOTAL}(EC2556VF + OG708VF + EPH2015VF) = 38,9 kW
P_{TOTAL}(*EC3380VF + OG708VF + EPH2015VF) = *44,7 kW

Fecha / Date: 20/01/2016 FEM 1005 - C25

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