

# Orchard Hill SEN & AP Schools



## Construction Management & Logistics Plan

### Revision History

| Revision | Purpose                  | Date       | Author       |
|----------|--------------------------|------------|--------------|
| Rev 1    | Planning Submission      | 03.06.2019 | Mike Elliott |
| Rev 2    | Condition Discharge      | 20.08.2020 | Mike Elliott |
| Rev 3    | Condition Discharge      | 23.10.2020 | Mike Elliott |
| Rev 4    | Incorporate LBH comments | 17.01.21   | Mike Elliott |
|          |                          |            |              |
|          |                          |            |              |
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## **SECTION 1 - INTRODUCTION**

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### **Objectives of this Plan**

The Construction Management and Logistics Plan is not confined simply to the activities occurring on this project.

The mandated logistics strategy will clearly set out the guiding principles to be followed in order to ensure alignment by all stakeholders and to aid the production of detailed (Lean & Agile) logistics plans. These plans must cover operational logistics requirements such as site accommodation, waste, security and temporary services, as well as material logistics requirements such as stores, material flows to / from site, delivery scheduling and tracking.

Logistics strategy planning will be considered over the whole project life cycle to ensure that the agreed logistics plans fully support and underpin the project goals.

As such the logistics strategy will manage all partners in a supply chain, extending beyond the boundaries of Laing O'Rourke.

The Logistics Strategy sets the guiding principles, driving forces and ingrained attitudes that aid in achieving objectives by coordinating goals, plans and policies between Laing O'Rourke, its partners and key stakeholders such as clients and local authorities.

The Logistics Strategy will also be aligned to the Project Execution Plan (PEP) which has the primary purpose of communicating to stakeholders how the requirements of the project will be delivered. It also provides a record at each stage of the project lifecycle of the agreed project strategy and a basis to measure and manage change.

This plan seeks to manage highway impacts in accordance with Policy DMHB 11, DMT2 and DME14 of the Hillingdon Local Plan: Part Two - Development Management Policies (2020).

### **Policy Context**

Consideration and reference will always be given to relevant policies stipulated by authorities and local planning conditions, which include TfL and Hillingdon.

Additional policies referenced:

### **Construction Logistics and Cyclist Safety (CLOCS)**

The Transport Research Laboratory published the 'Construction Logistics and Cyclist Safety' (CLOCS) report in February 2013. CLOCS aims at achieving a visionary change in the way the construction industry manages work-related road risk. This is being achieved through three industry-led work streams:

- Improving vehicle safety through design and manufacture of safer new vehicles and appropriate safety equipment for existing vehicles
- Addressing the safety imbalance in the construction industry by ensuring road safety is considered as important as health and safety on-site
- Encouraging wider adoption of best practice across the construction logistics industry by developing a common national standard and a new norm

CLOCS has developed the “CLOCS Standard for Construction Logistics: Managing work-related road risk” which has become a common standard for use by the construction logistics industry. Implemented by construction clients through contracts, it provides a framework that enables ownership in managing road risk which can be adhered in a consistent way by fleet operators.

#### [Tfl Construction Logistics Plan Guidance \(2017\)](#)

This guidance document seeks to ensure that CLPs are developed of a high quality are produced to minimise the impact of construction logistics on the road network. The document provides detailed advice on writing each section of a CLP, from policy through to planned measures.

It is noted that well-planned construction logistics will reduce:

- Environmental impact: Lower vehicle emissions and noise levels
- Road risk: Improving the safety of road users
- Congestion: Reduced vehicle trips, particularly in peak periods
- Cost: Efficient working practices and reduced deliveries

#### [The Mayor's Transport Strategy \(2018\)](#)

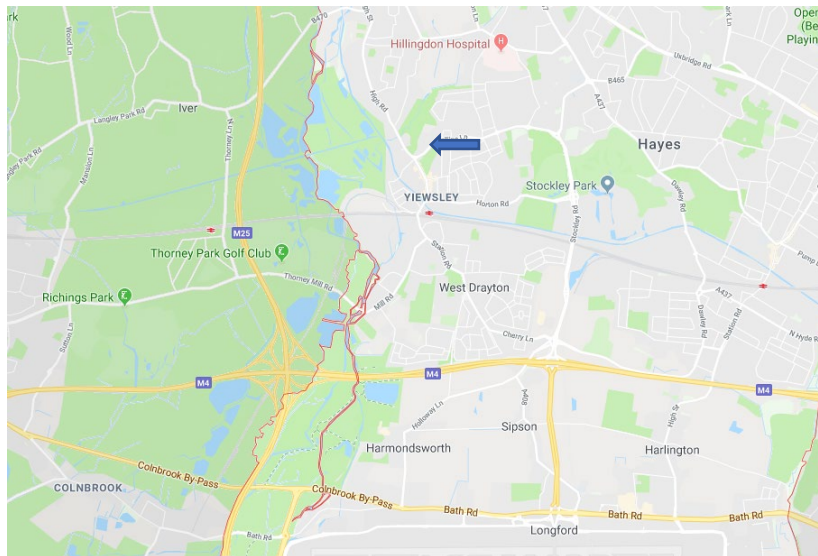
The Mayor's Draft Transport Strategy includes targets to reduce construction traffic within central London by 5% by 2020. Proposals 16 and 17 outlines TfL's aims to work collaboratively with the freight industry and businesses to produce a more efficient and safer servicing and delivery network within London. This is proposed as being achieved through incorporation of consolidation centres within CLPs and rescheduling of construction deliveries away from peak periods.

## **SECTION 2 – CONTEXT, CONSIDERATIONS & CHALLENGES**

### **Site Context**

The school site is located in Yiewsley, West Drayton, approximately 4.1 km east of Slough. It sits within a residential setting, with predominantly two storey houses surrounding the site to the south and east. To the west it is bounded by Rabbsfarm Primary and to the north by parkland. The site access is from Falling Lane to the south. The closest major road is A408, linking the site into the centre of West Drayton, where there is a train station with links east into central London, and towards Reading and beyond to the west. There are several bus routes in the area linking commuters into West Drayton and towards Heathrow to the south. The U1, U3 and U5 bus routes pass the site to the south, on Falling Lane.

The current Young People's Academy is located at 71 Falling Lane, West Drayton UB7 8AB.



*Figure 1 Google map of site location*



*Figure 2 Google earth aerial view of site boundary*

### Site Analysis

The site is bounded by residential properties to the south and east, Rabbsfarm Primary School to the west and open land to the north, with access to the site off Falling Lane to south. The site is currently used as a school and comprises a single storey school building located centrally on the site, with five prefabricated classroom buildings located to the west and south west of the main school building. A modern extension is present on the east of the main school building. An asphalt surfaced car park separates the school building from the prefabricated classroom to the south west.

The northern part of the site is comprised of a grassed playing field, with an approximately 1m high mound separating the playing field from the school building and the MUGA to the south.

The access to the current school gives on to Falling Lane to the south east and this access will be maintained for school use only throughout the construction phase.



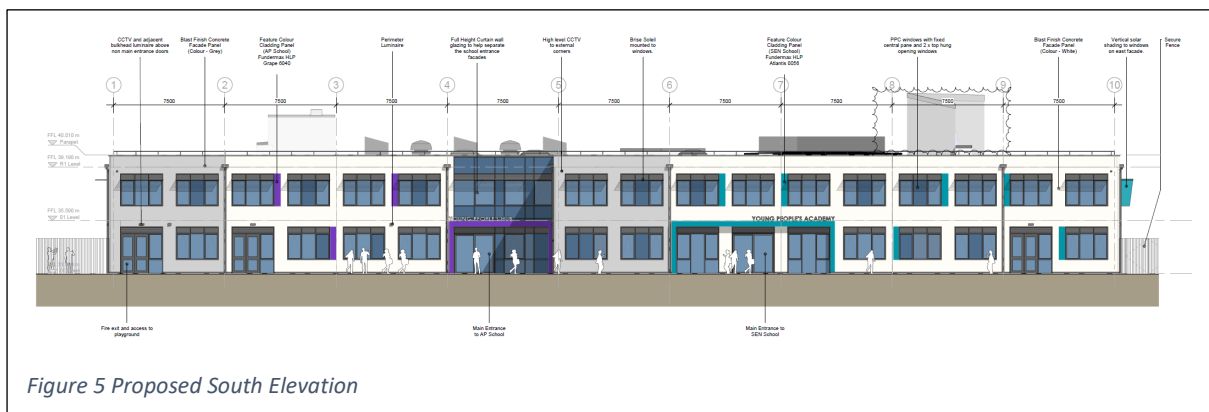
*Figure 3 Entrance to Young People's Academy from Falling Lane*

### Development Proposal

The new school building is split into two zones. **Young People's Academy (YPA)** and **Young People's Hub (YPH)**. Students, staff and visitors enter each school zone through light and welcoming waiting areas.

The development is for 230 place secondary SEN and all through Alternative Provision. The delivery of the specialist SEN curriculum requires careful refinement of typical teaching and learning spaces, to create the correct atmosphere and promote successful outcomes in SEN students.

The new building will be built whilst the existing school remains in use. On completion of the build, students will move across to the new school, to allow the existing building to be demolished to make way for sports play areas and parking for the new school. Construction works will be phased in sequence, working out from the rear of the site so as not to block the existing access route. Construction will be via a haul road to be constructed adjacent to Rabbsfarm Primary (as per similar access installed to enable the build of that school), to cause less disruption to the running of the existing live Young People's Academy.



## SECTION 3 – LOGISTICS & DELIVERY

### Site Location

The new school will be built on the playing field of the Young People's Academy to the north of the existing school at 51°31'06.0"N 0°28'18.8"W.

Maintenance of the uninterrupted operation of the Young People's Academy during the construction phase is of paramount importance.

The access to the construction site of the new school will be via Philpot's Farm green space accessed off Yiewsley High Street (A408) at 51°30'57.1"N 0°28'30.1"W

This aerial photograph shows the proposed development site, which is a large, irregularly shaped plot. The site is bounded by a road to the north and a railway line to the south. A red line highlights the proposed access route from Yiewsley High Street to the site. A blue line highlights the proposed access route from A408 to the site. The site itself is divided into several sections, including a large central area, a smaller area to the north, and a smaller area to the south. The surrounding area includes residential housing, a school, and a park.

Site access from Yiewsley High Street

Laing O'Rourke site offices

Construction access from A408 – no right turn onto A408

This haul road will enable Falling Lane to be kept clear of construction deliveries and allow Laing O'Rourke to control construction traffic flow directly.

Laing O'Rourke will install site offices and welfare facilities from which to manage the project to the north of the site in a secure temporary compound.

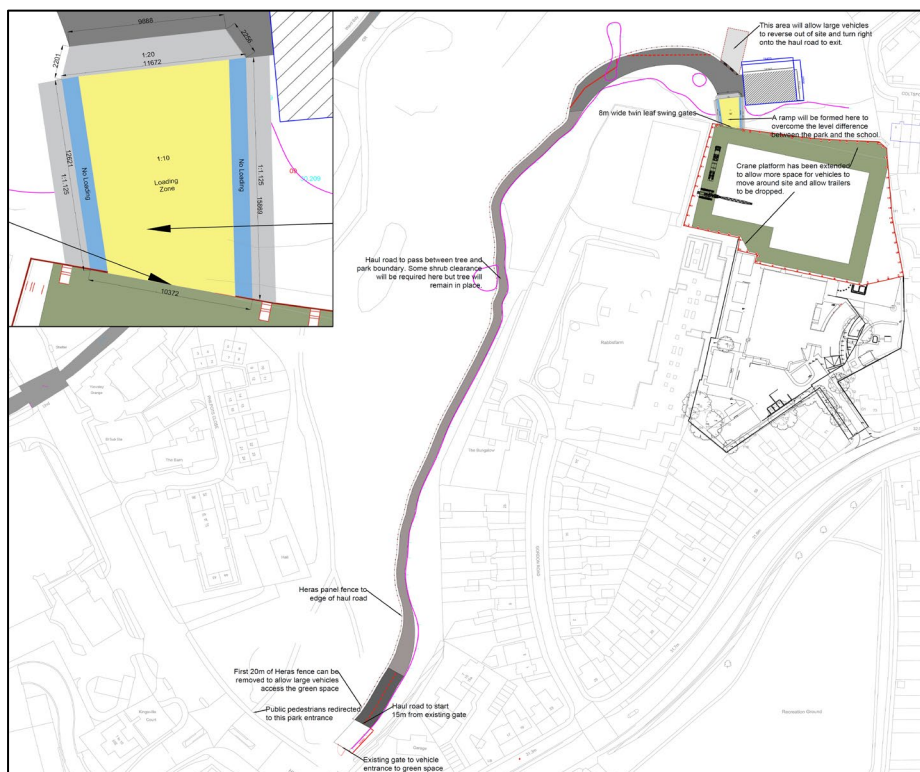


Figure 7 Plan showing haul road and site compound



Figure 8 Indicative model image showing Laing O'Rourke site compound and site entrance

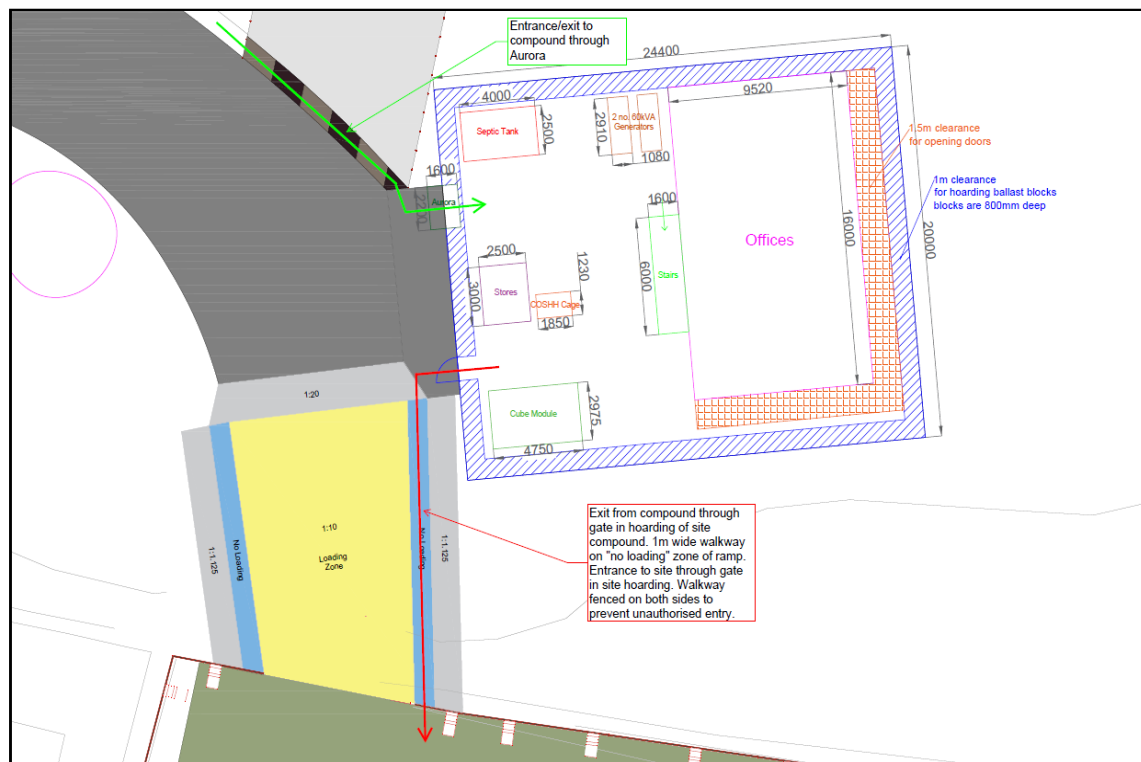


Figure 9 Detail plan of site compound

**Management Team**

| <b>Name</b>    | <b>Position</b>      | <b>Contact Details</b> | <b>In/Out of Hours</b> |
|----------------|----------------------|------------------------|------------------------|
| Mike Elliott   | Project Leader       | 07825726002            | Primary Contact        |
| Mark Ferguson  | Structures Lead      | 07823362357            | Secondary Contact      |
| Leo Madden     | Construction Manager | 07733014452            | Tertiary Contact       |
| Clodagh Murphy | Senior Engineer      | 07341072261            |                        |

### Managing Construction Vehicles & Deliveries

Laing O'Rourke have considered the residential nature of the locality and the requirement to keep the existing school operational and tried wherever possible to minimise the impact of the construction of Orchard Hill on the local community and road network.

The offsite - manufactured solution proposed by Laing O'Rourke to meet the brief of the Department for Education means that there will be less trades on site requiring less deliveries and logistics movements. Many of the components for the new building will be arriving from either:

- Explore Manufacturing, S80 3FD (Structural façade, columns, beams)
- Crown House Manufacturing, B69 4LA (MEP components and plant room)
- Creagh Concrete Products, NG14 7JX (Hollow core planks and precast stairs)

This allows accurate scheduling of deliveries and real time tracking of the same meaning less disruption and unpredictable arrival times.

It is understood that the timely management of deliveries is key to the success of the project and in minimising disruption to local stakeholders.

During the works, weekly logistics planning meetings will be held with all the contractors to ensure their deliveries are scheduled, planned and coordinated to avoid congestion. The project will utilise a Delivery Management System (DMS) for the booking and scheduling of deliveries, which aids visibility of the planned contractors' delivery dates and times, locations of delivery, and offloading facility required.

All deliveries will be controlled by our site management team to prevent congestion from delivery vehicles on the surrounding roads.

No vehicles will be granted access to site unless booked-in and authorised. We will require subcontractors to strictly adhere to a just-in-time delivery methodology for loading out to the respective workforce. This protocol will be embedded into the supply chain and trade contractor contract documents and agreed in detail at pre and post-contract meetings.

This process will be managed and coordinated by the DMS; this is a live and interactive system linking the project and the supply chain.

Benefits:

- a) Enabling suppliers to request their preferred time slots and receive confirmation of their allocated slot
- b) Providing greater visibility for all application users
- c) Providing advanced notice to gate personnel and allows for a more efficient flow of site traffic
- d) Facilitating more efficient operations
- e) Enables planning of daily allocation of gate teams, traffic marshals and plant
- f) Preventing congestion on adjacent streets
- g) Provides a detailed record of all deliveries, should follow-up investigations be needed in the unlikely event of a breach in security
- h) All delivery vehicles to be CLOCS & FORS (silver or better) compliant.
- i) Packaging proposals are to ensure that waste is minimal.

### Delivery Management

All supply chain contractors will be contractually required to use the project delivery management systems Voyage Control including vehicle tracking, failure to book all vehicle movements using this system will result in transport being denied access to the project.

Voyage Control system takes the guess work out of logistics management, removing the risk of human error and providing Laing O'Rourke and our suppliers with full, real-time visibility of logistics activity.

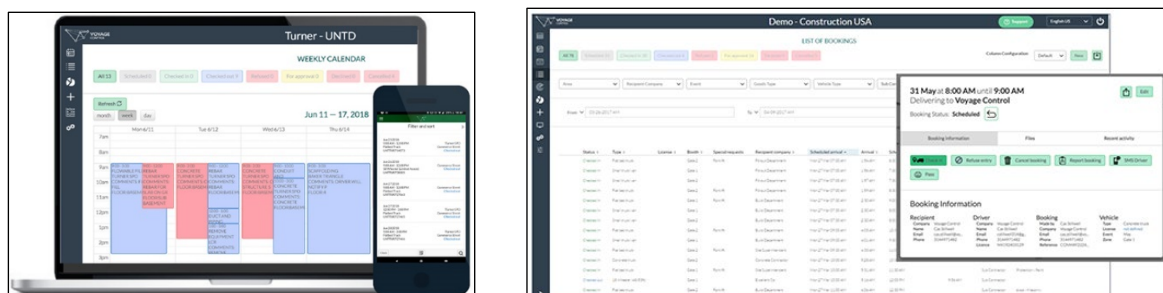


Figure 10 Voyage Control user interface

The automatic, cloud-based scheduling tool can be accessed by any supplier or subcontractor from any web-enabled device. The fully comprehensive and simple booking form allows them to input their required arrival time, time needed for offloading, vehicle type, user type (e.g. concrete or waste) and special requests, such as equipment required for offloading.

Using this information, the system online provides time slots that are really available. This saves the logistics manager the time it would take to ensure availability manually, while still providing the ability to accept or decline – thus maintaining total control of the project.

The automated nature of the system allows a raft of data to be collected and analysed on an ongoing basis. From punctuality to total CO<sub>2</sub>, all related data is automatically shown on an easy-to-understand dashboard – with more detailed reports available at the touch of a button. This allows projects to produce highly accurate environmental reports to see their impact in real time.

### Direct Vision Standard & Road Safety

The Direct Vision Standard measures how much an HGV driver can see directly through their cab windows. This indicates the level of risk to vulnerable road users, such as people walking and cycling, near the vehicle.

All vehicles entering site must conform to the DVS with **at least a 3-star rating and class VI mirrors**. Further information on standards and the permits which will be enforced from March 2021 is available here:

<https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/direct-vision-in-heavy-goods-vehicles>

### Delivery Access

Deliveries to site will approach from the north, turning left from the A408 Vehicles exiting site will be restricted to a left turn back on to the A408 to access the main part of Falling Lane and the B467 to get back to the A40 and M25.

Swept path analysis of the turning off the A408 and up and around the haul road has been carried out (see Appendix B).



Figure 11 Proposed construction traffic routes to and from site and M25



Figure 12 Explore Manufacturing Route to Site

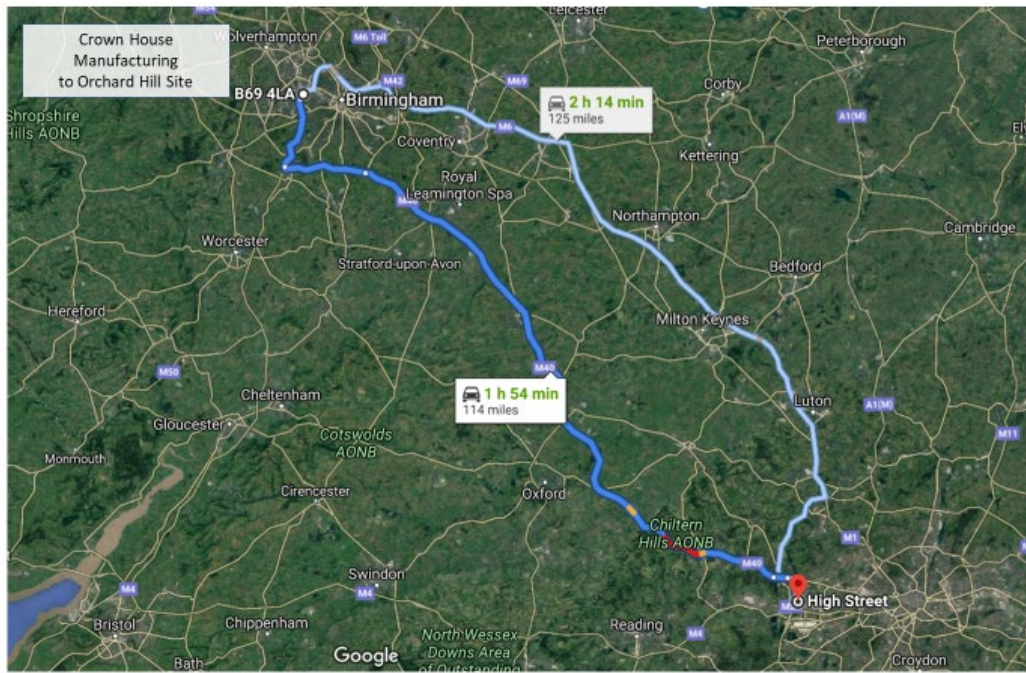


Figure 13 Crown House Manufacturing Route to Site

### Haul Road

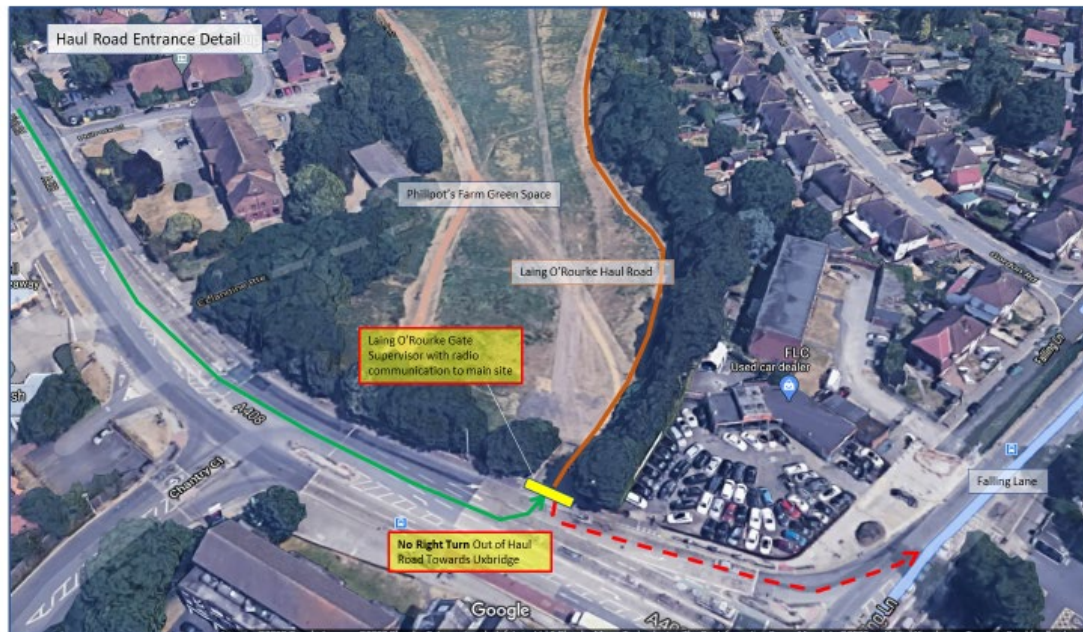


Figure 14 Detail at the Haul Road entrance off A408

### Northern Approach

The junction of the haul road and the A408 is close to the existing junction of the A408 with Falling Lane heading east and Trout Road heading south west.

Vehicles approaching this junction from the north along the A408 and wanting to turn left into Falling Lane use a filter lane on the left of the carriageway. There are 3 other lanes – 2 to go straight ahead, 1 to turn right into to Trout Road.

Articulated delivery vehicles approaching from the North to turn left into the haul road will need to swing out the right into the middle lane to make this turn.

Traffic Marshals at the haul road entrance will manage other road users and pedestrians to ensure this turn is made safely, avoiding the danger of other road users continuing up the inside of delivery vehicles turning left. Clear signage will warn other road users of the turn across the filter lane.

For swept path diagrams see Appendix B.

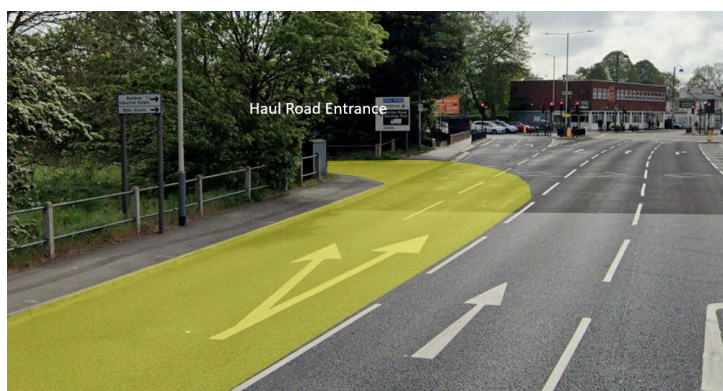


Figure 15 Street view image showing indicative turn zone across filter lane

### Traffic Marshalling and Gate Control

There will be a gate staff located at the entrance to haul road from the A408 Yiewsley High Street as well as at the gate into the main site at the other end of the haul road. The gate team will be responsible for the safe passage of delivery vehicles entering and exiting the haul road and main site.

The gate team will communicate by radio, ensuring there is always room for deliveries prior to allowing them up the haul road. We have incorporated two layby waiting areas on the haul road to prevent blocking of the filter lane mentioned above. **No vehicles will be allowed to wait or on the local road network. No idle-running or waiting at the site entrance will be allowed.**



Figure 16 Haul road plan showing gate team locations and passing zone

### Delivery Volumes

#### Weeks 1-13 Substructure Works

Peak - 50 loads/day: Mainly rigid tipper wagons, refuse and skip lorries

#### Weeks 13-25 Superstructure

Peak – 10 loads/day: Mainly articulated trailers, refuse and skip lorries

#### Weeks 25-60 Fit Out

Peak – 20 loads/day: Rigid wagons, vans, refuse/skip lorries with some articulated trailers

#### Weeks 60- 80 Demolition and Landscaping

Peak – 10 loads/day: rigid tipper wagons and vans

### Delivery Flows

As described above, laybys have been provided inside site to allow vehicles to wait off the road network to be unloaded. In the unlikely circumstance that deliveries arrive when this space is full, they will be asked to loop around the route described in Fig 11 until such time as space is available.

Much of the building is to be manufactured by Laing O'Rourke and deliveries of these elements will be 'just in time' from our facilities in Worksop and Oldbury. Should there be a need, these deliveries can be held at the Explore Transport depot at Aveley in Essex or Erith in Kent. Roofing and drylining materials will be sourced via SIG, whose new yard at Heathrow will mean deliveries can be called in when required to minimise traffic in the borough. The same is true of the CCF depot at Alperton.

### Measures to Prevent Dirt Tracking

Laing O'Rourke are conscious of the impacts on safety and appearance of construction traffic tracking dirt on to surrounding roads and footpaths. In order to prevent this, we will:

- Install a tarmac crane track around the new building so that all plant is tracking on a level and clean surface. This also prevents dirt being brought out of site on tyres.
- Provide a fully tarmac surface to the haul road to prevent construction dirt leaving Philpot's Farm on tyres of vehicles
- Provide a pressure washer at the exit onto Yiewsley High Street (A408) so that in the unlikely event that dirt is tracked down the haul road, the gate staff can wash it off before it reaching the road or footpath network.

### Site Hours

Working hours will be **0800 to 1800 Monday to Friday** and **0800 to 1300 on Saturday**.

Work on Sundays will be avoided where possible and only carried out to fit with works avoiding school term time or abnormal loads.

### Management of Out of Hours Deliveries

Abnormal loads will be received and removed from the project as detailed by the transport constraints imposed by the metropolitan police. A Section 61 variation will be obtained in advance and local stakeholders informed.

Contact with the existing school will be closely maintained and any sensitive or critical periods acknowledged with work activities planned appropriately where possible.

### Travel to Site

Driving to site will be discouraged in favour of public transport. Pedestrian access is to be along the haul road to discourage disturbance to surrounding neighbours. Cyclists will access by the same means but there will be a separate pedestrian gate in the site compound hoarding to allow bikes to be brought inside the secure line once riders have entered through the turnstiles.

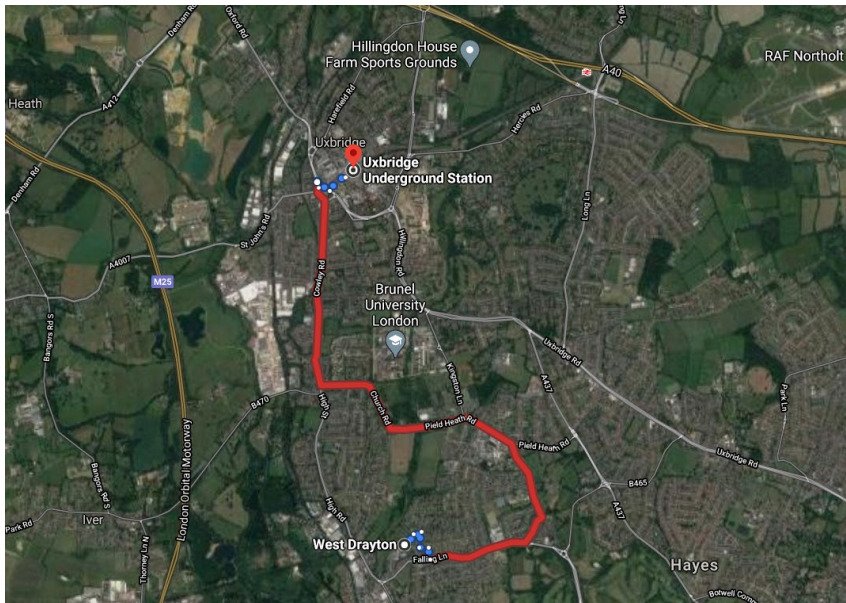


Figure 17 Travel from Uxbridge Underground Station via U5 Bus – 30 mins

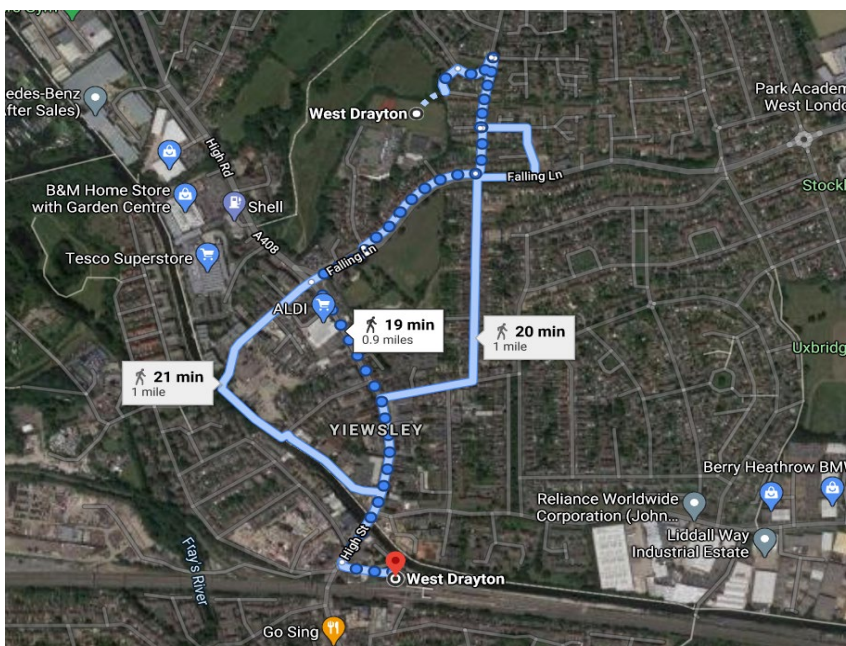


Figure 18 Travel from West Drayton National Rail Station via Yiewsley High St. - 20min walk

There will be some members of the site team who will stay locally during the working week in hotels/lodgings – a likely journey to site is:

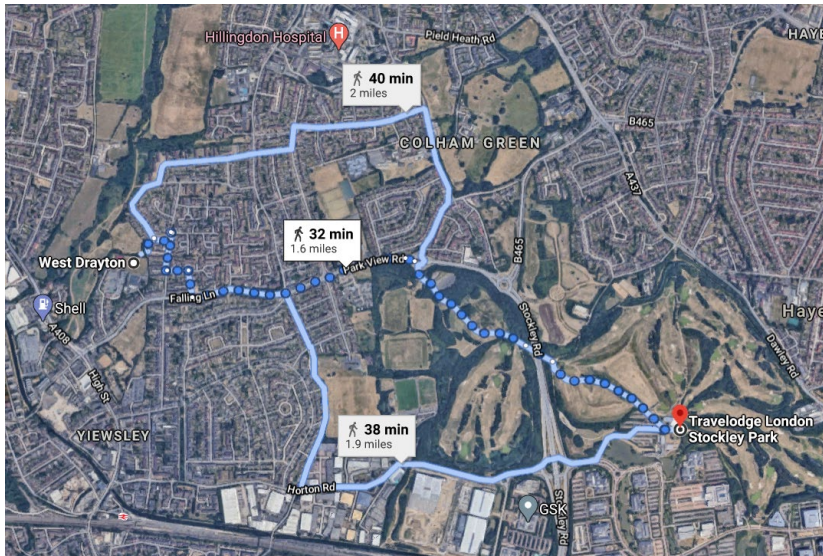


Figure 19 Travel from Travelodge London Stockley Park – 30 min walk

Those for whom driving is unavoidable can use the Fairfield road car park in Yiewsley where 9 hours currently costs £6.20.

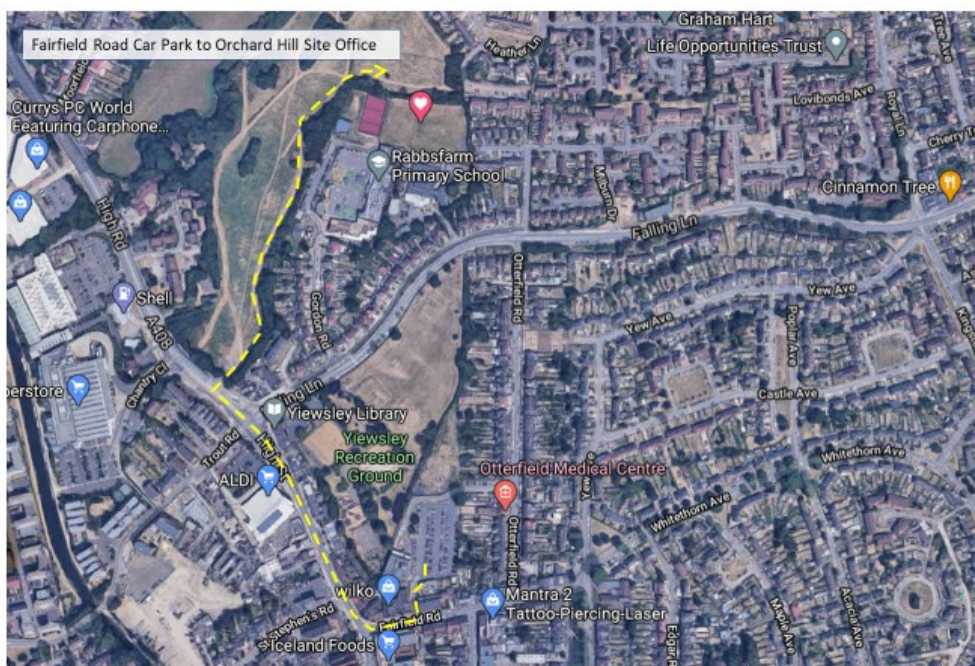


Figure 20 Travel from Fairfield Road Car Park – 15-minute walk

### Site Offices and Welfare

Laing O'Rourke will provide offices for the site team and client alongside drying/changing rooms, canteen with microwaves and fridges, first aid room and toilets:

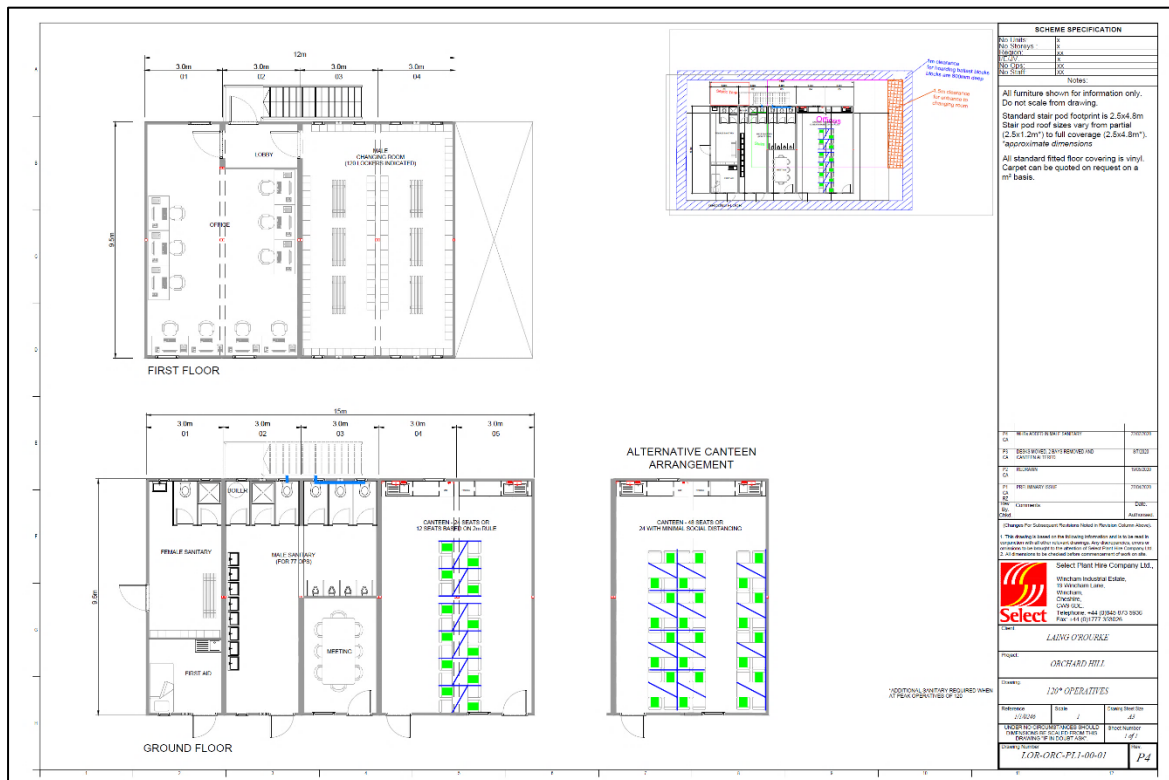


Figure 21 Laing O'Rourke Site Accommodation Layout

### COVID-19

Welfare facilities will be made COVID secure in line with PHE guideline and those laid out in 'Site Operating Procedures – Version 6' published by the Construction Leadership Council.

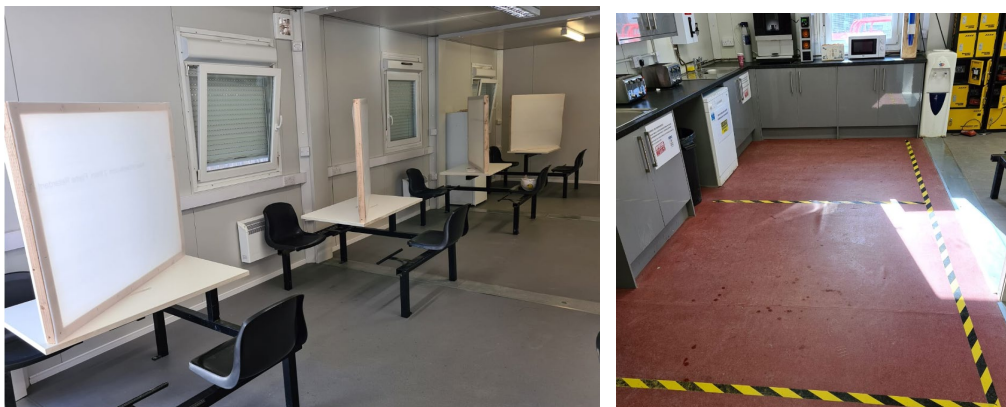


Figure 22 Examples of COVID security measures

Laing O'Rourke now has extensive experience of making workplaces COVID-safe and we will use all of the lessons learned from other projects to ensure Orchard Hill meets the high standards set elsewhere – and government guidance as a minimum.

### Site Access and Aurora

Access to site for all personnel is via a facial recognition turnstile system (Aurora) which will be located at the entrance to the site compound and accurately record the arrival and departure time of personnel and visitors on site.



*Aurora Turnstile*

### Movement Around Site

Access to all parts of the site (internal and external) will be in line with Laing O'Rourke Group standard guidance G4 -J Access Routes and COVID-19 Operational Workplace Guidance (attached in Appendix C). These standards ensure safe access at all times.

Access routes will be reviewed at least weekly or as works require to ensure they always remain appropriate and safe.

In general, and notwithstanding the standards mentioned above:

- All main access routes will be pre planned to ensure all pedestrian access routes are segregated and protected from vehicular traffic or plant if possible
- All pedestrian access routes will be clearly identified and delineated.
- Any crossing points over traffic routes will be planned and established to allow control with provision of roadside barriers, warning notices for pedestrians and vehicles, painted crossing points on the road and traffic calming measures considered when planning and designing crossing points and pedestrian routes through sites or workplaces

## **SECTION 4 – PHASING & PROGRAMME**

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### **Key Dates**

Haul Road Start – 7<sup>th</sup> December 2020

Section 1 (New School) Start – 4<sup>th</sup> January 2021

Section 1 Completion – 28<sup>th</sup> February 2022

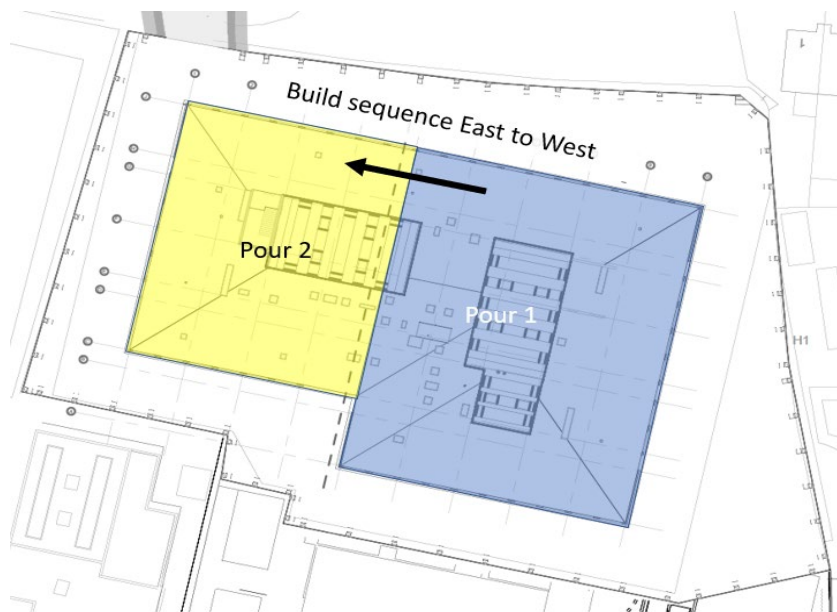
Section 2 (Demolition and Landscaping) Start – 7<sup>th</sup> March 2022

Section 2 Completion – 12<sup>th</sup> October 2022

### **Construction Phasing**

The new school building is to be delivered between December 2020 and February 2022, allowing occupation of the new building during half term in that month. There will then be an external phase involving the demolition of the existing school and completion the car parking and external landscaping.

The construction of the new building is split in to 4 ‘pours’ or areas and the flow of work will be East to West.



*Figure 23 Build sequence*

### **Enabling works**

Laing O’Rourke will provide temporary access to site through Philpot’s Farm as described above and in Figure 7. The site compound will be positioned to the northwest – separated from the existing school and residential neighbours.

Site clearance, reduced level dig, imported hardcore for haul road, hard standings and foundations will require increased lorry movements for two weeks.



Figure 24 Weeks 1-5 Enabling Works

#### Substructure Construction (week 1–11)

Substructure will commence at week 5 with the ground preparation for a crane access track around the perimeter of the school footprint. We have allowed 30 days for 2000m<sup>3</sup> bulked excavation with a lorry capacity of 9m<sup>3</sup> equalling **eight lorries daily**.

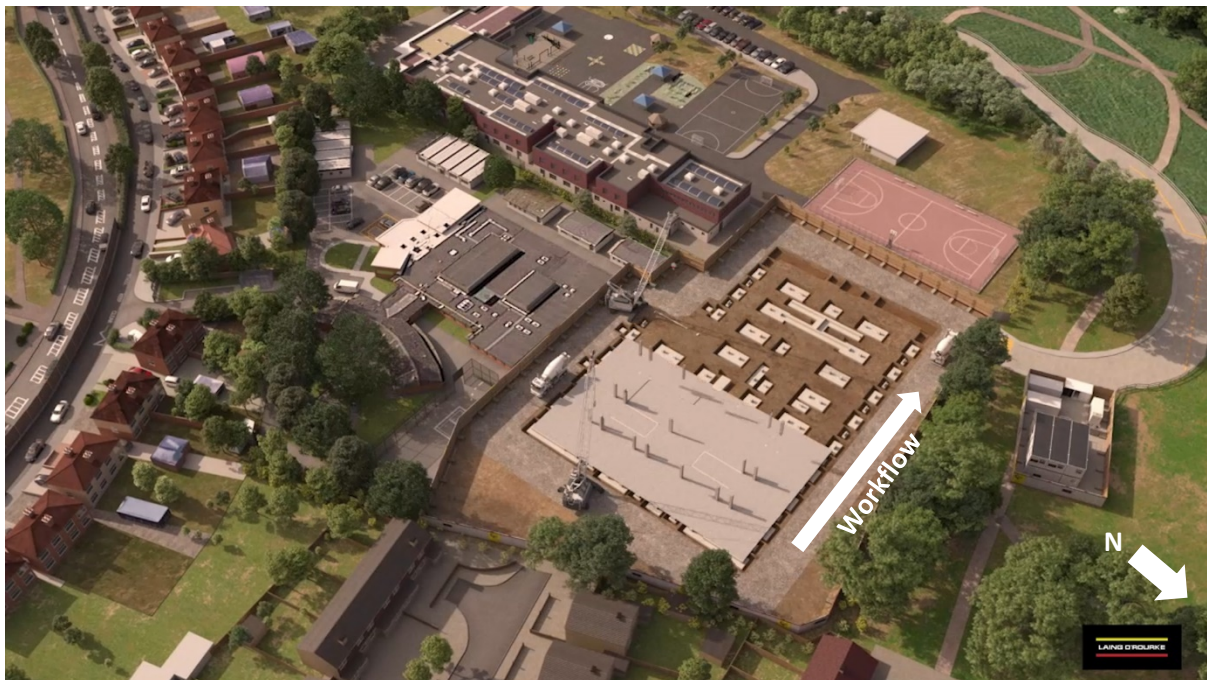


Figure 25 Week 8-19 Substructure

### Superstructure Construction (week 12–28)

With area 1 complete, the superstructure will commence:

- Site serviced by two crawler cranes with fly jibs
- Systematic erection of precast concrete
- Superstructure completed in ten weeks
- Roof insulation/membrane completed by week 30
- Package plantroom and air handling units following roof



*Figure 26 Superstructure weeks 18-28*

### Cladding

- Cladding panels installed in parallel with structure
- Precast elevation panels delivered pre-glazed – allowing fit-out progression



*Figure 27 Cladding panels installed*

### Internal Fit Out – MEP Services (week 27–60)

Laing O'Rourke's modularised approach reduces programme and onsite labour. We anticipate a peak workforce of less than 60 – a 50% reduction on traditional methods. This improves site set-up, logistics, health and safety, and disruption. Main runs of corridor and riser services will be modularised where possible, as will over 60% of internal walls.

### Incoming Utilities and Temporary Student Drop-Off (week 40–46)



*Figure 28 Incoming services diversions completed during school Easter holiday*

Works are sequenced to minimise disruption to school activities – ensuring early availability of incoming utilities. The works will take place out of school hours, with access maintained.

### Incoming Utilities

- Gas and water proposed routing at the southeast corner of the site
- Scottish & Southern Electricity Networks (SSEN) electrical supply via Leacroft Close to the east.

### Fit-Out Commissioning

- Key hold and inspection points will ensure wall and ceiling void signoffs are recorded. A six-week
- Snagging period is programmed before ceiling tile and loose FFE installation to support quality objectives.
- Progress of fit-out links into the commissioning period – particularly for BMS and fire alarms. Life safety tests and a system proving soak test (seven continuous days) follow.

### Temporary drop-off

- In advance of decant, we will take possession of the multi-use games area (MUGA) and provide temporary drop-off.



Figure 29 New school complete and start of decant

### Demolition of Young People's Academy and Landscaping (week 71–84)

After decanting old school into new, hoarding will separate the operational new school from the demolition zone. Demolition traffic will be directed to the northwest site entrance and segregated. Works will be sequenced to:

- Maintain drop-off zone
- Maintain staff car park
- Control noise/pollution

After demolition, final landscaping will be completed within site boundaries.



Figure 30 New school operational & start of demolition/landscaping

#### Final Landscaping, MUGA and All-Weather Pitch

This section of works consists of:

- Site A – west side of new permanent car park/drop-off/access
- Site B – east side of new permanent car park/drop-off/access



Figure 31 Final landscaping and provision of sports facilities

Project Completion 23<sup>rd</sup> August 2021



*Figure 32 Project complete*

## SECTION 5 – OFFLOADING, DISTRIBUTION, WASTE & CONTROL OF NUISANCE

### Cranes

The frame construction will utilise 2 100t crawler cranes with fly jibs to lift precast columns, beams, hollow core planks, twin wall panels, precast stair units and sandwich cladding panels. Cranes will also be used to assist wet concrete works where concrete pumping is not appropriate. These cranes will travel around the 7m wide track that will be formed around the entire footprint of the school. This will be finished in tarmac base course and left low for final finishing with landscaping.

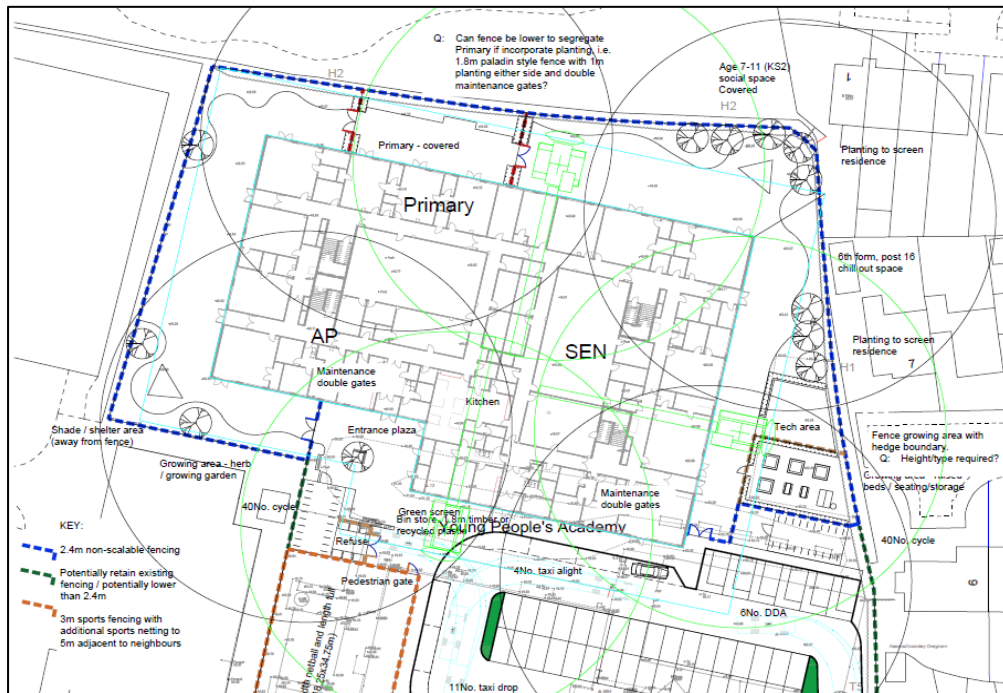


Figure 33 Crane plan with crane working radii



Figure 34 Foundations showing crane track around building footprint

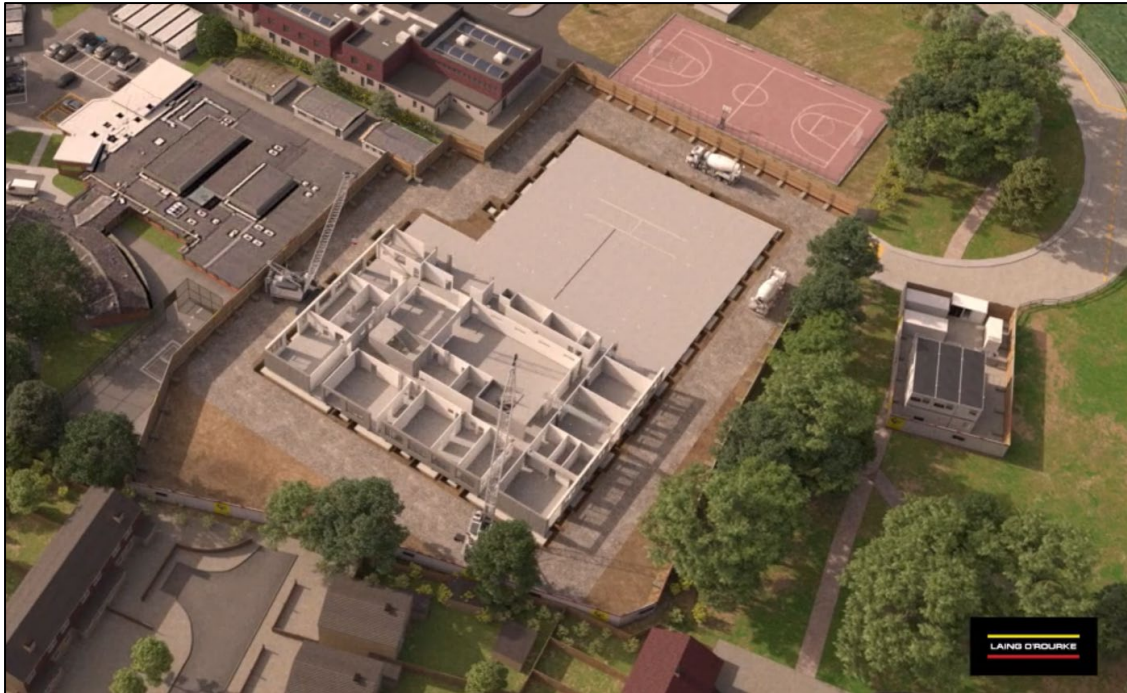


Figure 35 Crawler cranes constructing frame and internal walls (Smart wall)

### Loading Out

Loading out will be by 360° forklift (Merlo) onto scaffold loading bays at breaks in cladding which will ultimately be clad using curtain walling. This method will be used to load out MEP modules, plasterboard, pipe work, FF&E, ceilings and other required fit out materials.

Roof steel and decking, rooflights and the modular plant room will require a mobile crane which will be brought in as required. Predicted crane positions are shown in Appendix D.

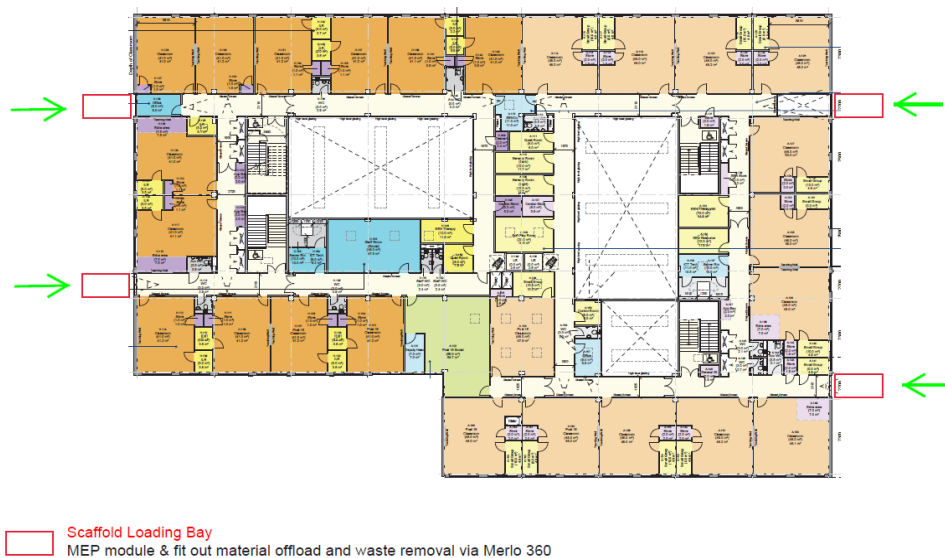


Figure 36 Offloading and distribution to Level 1 and roof

### Materials Storage on Site

- Minimal on-site material storage will be allowed with construction elements and materials brought in 'just in time' wherever possible.
- Where material must be stored on site this will be for limited time and in strictly controlled and clearly labelled storage areas.
- Secure cages will be used for storing COSHH materials and gas bottles
- The Laing O'Rourke Supervisor will be responsible for ensuring materials are stored safely and for the shortest time possible.

### Noise Control and Reduction

Nuisance from demolition and construction works is subject to control under The Control of Pollution Act 1974 and all noise generated during such works should be controlled in compliance with British Standard Code of Practice BS 5228: 1984.

A meeting with the EHO at London Borough of Hillingdon is to be arranged prior to work starting to ensure noise and nuisance reduction proposals are acceptable.

### Noise Mitigation

The noise impact of the construction phases can be minimised by use of the noise control measures. General principles for the control of noise during the construction works are presented below:

- Appropriate choice of plant and equipment
- Regular plant maintenance to keep plant in good working condition and reduce noise from machinery
- Careful phasing of the proposed operations
- Provision of temporary barriers where works are beyond normal acceptable noise levels

### Noise Reduction of Mobile Plant

- The movement of plant onto and around the site will have regard to the normal operating hours of the site and the location of any noise sensitive receptors.
- Audible reversing alarms will be of a type, which whilst ensuring that they give proper warning, have a minimum noise impact external to the site.
- The haul road and routes around the site will be well maintained and avoid steep gradients.
- Earth moving plant to be fitted with sound reduction equipment where possible and manufacturers' enclosure panels to be kept closed.
- Careful phasing of the works will also aid in minimising their impact.
- The site compound is at the back of the site so as to be as far away as possible from noise sensitive locations to assist in minimising sources likely to generate nuisance.
- Close liaison with the occupants of properties within noise sensitive locations will be maintained in order to ensure that they are aware of the timing and duration of activities. This particularly applies to residents of Falling Lane and Coltsfoot Drive to the east of the site and Rabbsfarm Primary School to the West.
- Constant liaison will be maintained with Young People's Academy with regard to noisy works

- Generators to be placed behind site cabins (away from local noise receptors) and use acoustic covers to aid noise reduction
- One way traffic system to be used to reduce annoyance caused by vehicle reversing alarms
- Haul road and crane mat tarmac surfaced to reduce vibration impacts from heavy plant

### Control of Dust and Impact on Air Quality

All reasonable measures will be taken to prevent annoyance or inconvenience to residents, road users or pedestrians due to dust or air-borne contaminants due to the construction process. Mitigation measures:

- Tarmac surface to haul road and crane track minimises dust from vehicles
- All deep excavations taking place in winter months
- Full skips to be covered when leaving site
- Full muck/aggregate wagons to be covered when entering and leaving site
- Minimal storage of aggregates/fill materials on site. Where necessary, piles/mounds to be covered with appropriate membrane to prevent airborne dust
- Maximisation of offsite manufactured building elements- structural frame, slabs, facades and internal walls - reduces dusty materials on site
- Where perimeter hoardings are not solid, monarflex or similar sheeting to be used to reduce dust migration from the site
- Water bowzers to be used to suppress dust where necessary
- All cutting and grinding tools to have water dust suppression accessories
- Low VOC products to be promoted where their efficacy is not in contravention of building regulations or client specification
- Plant engines to be switched off when not in use

### Lifting

All lifting will be planned and carried out in line with the Laing O'Rourke 'Safe Lifting Operations' document, Provision and Use of Work Equipment Regulations 1998 (PUWER) and Lifting Equipment Regulations 1998 (LOLER).

### Tree Protection

All construction activities will pay heed to the Arboriculture Method Statement and Tree Protection Plan appended to this document in Appendix F which outline requirements under BS 5837:2012.

**Resource Management Plan (Site Waste Management Plan)**

Waste to be disposed of in skips during construction of sub and superstructure and into bins located in central areas once fit out starts.

All subcontractors are responsible for minimising waste and designing packaging for re-use as a priority, recycling if re-use is not possible. Packaging to be removed from site by subcontractors where possible.

All waste is governed by the following regulations:

|                                                                                              |
|----------------------------------------------------------------------------------------------|
| The Waste (England and Wales) Regulations 2011 (last amendment SI 2015/1417)                 |
| The Hazardous Waste (Wales) Regulations 2005 (last amendment) SI 2015/1417                   |
| The Hazardous Waste (England and Wales) Regulations 2005 (last amendment SI 2016 / 336)      |
| The Waste Electrical and Electronic Equipment Regulations 2013 (last amendment SI 2015/1968) |

**Waste Hierarchy**

1. **PREVENTION** of waste
2. If there is waste, **PREPARE FOR RE-USE**
3. Next consider **RECYCLING**
4. If it can't be recycled, then think of **OTHER RECOVERY** (for example, for energy)
5. Last resort – **DISPOSAL** in landfill

Waste will be minimised from design stage, through subcontract procurement and construction.

**Design:**

- Offsite manufacture means factory standard waste management processes and the ability to design out waste at source
- Smart wall install with the structural frame minimises plasterboard waste on site
- Where plasterboard is required, board sizes to be designed and manufactured to optimise manufactured product and minimise waste
- 70/60/30/0/0 approach – 70% of construction asset delivered via DfMA (offsite manufacture), 60% labour reduction onsite, 30% programme reduction in areas we control, 0% carbon footprint, 0% accident frequency rate

**Subcontract Procurement:**

- All subcontractors to be aligned with Laing O'Rourke's environmental and sustainability policies (see Appendix E)

## Construction

- Materials packaging minimised and taken away by suppliers where possible
- Sustainability and environmental management embedded in construction team culture – project leader's responsibility
- Site waste remaining after the above will be disposed of via segregated, clearly labelled skips and the Laing O'Rourke site logistics supervisor will be responsible for ensuring waste leaves the site in the appropriate skip.
- Signage will comply with the National Colour Coding Scheme – this consistent approach aims to increase recycling. The standard colours for each waste stream are:

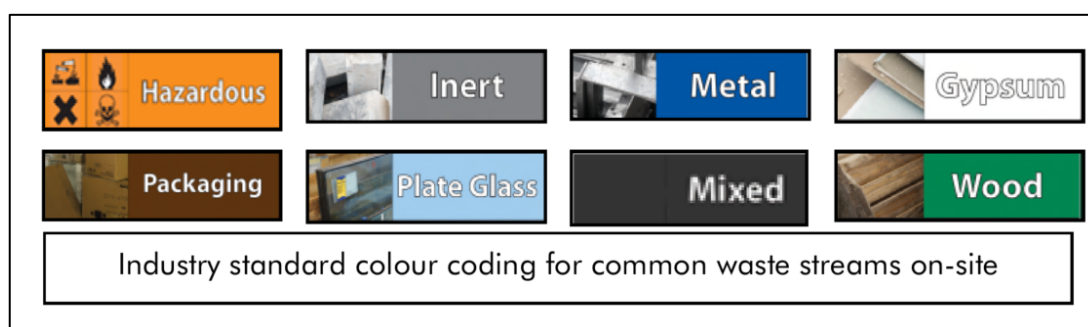


Figure 37 Waste stream colour coding

| DO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DON'T                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PREVENT</b> <ul style="list-style-type: none"> <li>✓ Store materials neatly to avoid damage/loss and keep in packaging until needed (protection).</li> <li>✓ Think of ways to reduce waste created on site and where appropriate, implement them.</li> </ul> <b>PREPARE FOR RE-USE</b> <ul style="list-style-type: none"> <li>✓ Keep significant off-cuts for use elsewhere.</li> <li>✓ Re-use materials until not fit for purpose.</li> <li>✓ Re-use materials for alternative purposes.</li> </ul> <b>RECYCLE</b> <ul style="list-style-type: none"> <li>✓ Segregate waste for recycling where possible and store in the correct container until removed from site.</li> <li>✓ Ensure skips are labelled clearly.</li> </ul> | <ul style="list-style-type: none"> <li>✗ Burn or bury waste – it's <b>illegal</b>.</li> <li>✗ Leave materials unprotected and where they are likely to be damaged by rain or mud (etc.).</li> <li>✗ Open new cans/pallets before the ones in use are empty.</li> <li>✗ Mix different types of waste – it prevents recycling.</li> <li>✗ Put waste materials into the wrong waste container.</li> <li>✗ Leave materials at risk from site traffic movements.</li> </ul> |

Further waste management targets and policies will be in the **Laing O'Rourke Construction Environmental Management Plan**.

## **SECTION 6 – IMPLEMENTATION & MONITORING**

---

The implementation and monitoring of the Construction Logistics Plan will be responsibility of the project Logistics team.

Constant review of the plan will take place at weekly logistics meetings and daily briefings and at major changes in project scope. This document will be updated accordingly.

**APPENDIX A**

---

Laing O'Rourke Health and Safety Policy

## HEALTH & SAFETY

Health and safety is a core value at Laing O'Rourke and will not be compromised. We regard safety primarily as an ethical responsibility. We are committed to creating safe working environments and improving long-term health and wellbeing to enhance quality, improve productivity and generate value – assisting in making us the employer of first choice.

This will be achieved by:

- Complying with relevant legislation and other requirements specific to the context of our business and regularly evaluating and reporting on our compliance obligations
- Displaying leadership, passion and commitment at all levels
- Recognising that people, their attitudes and beliefs are central to obtaining excellent health and safety performance
- Recognising positive outcomes and admiring and respecting safe behaviours across the organisation
- Having a well-trained and competent workforce who actively contribute and participate in the safe planning of their workplace tasks
- Empowering people to make sound choices about their own safety and the safety of others by encouraging and supporting them to continually challenge the environment in which they work
- Engaging, supporting and challenging our clients, industry partners and supply chain to raise the standards of safety
- Continually innovating and improving to reduce the potential risks to health and safety
- Using risk resilience, consultation, collaboration, empowerment and leadership at all levels as strong indicators of health and safety performance

We also recognise that continual review and improvement is a key component in ensuring our health and safety processes and standards remain current and effective in ensuring compliance with relevant legislation and regulations. In many cases we enhance these requirements to make Laing O'Rourke the company of first choice for all stakeholders, while challenging and changing the image of construction worldwide.

Everyone working for Laing O'Rourke is required to fully support and promote this policy by complying with the health and safety requirements and duties contained in the Integrated Group Management System (iGMS). We take pride in everyone returning home safely every day.

The Board of Directors of Laing O'Rourke fully endorses this policy.



**Sir John Parker GBE**  
**Chairman**

**APPENDIX B**

---

Swept Path Analysis Diagrams

LAING O'ROURKE LOGISTICS  
BRIDGE PLACE 2  
ANCHOR BOULEVARD CROSSWAYS,  
DARTFORD KENT, DA2 6SN  
07384 809411

Client:

Site Location: Orchard Hill

Reference: OHV6-1      Drawn:15/09/2020

|            |        |                     |
|------------|--------|---------------------|
| Date:      | Issue: | Checked:            |
| 15/09/2020 | 01     | Signed: Matthew Cox |

|            |               |
|------------|---------------|
| Job No: 08 | Drawing No:01 |
|------------|---------------|

Site Measurements:  
N/A

Road Type:  
N/A

Notes:

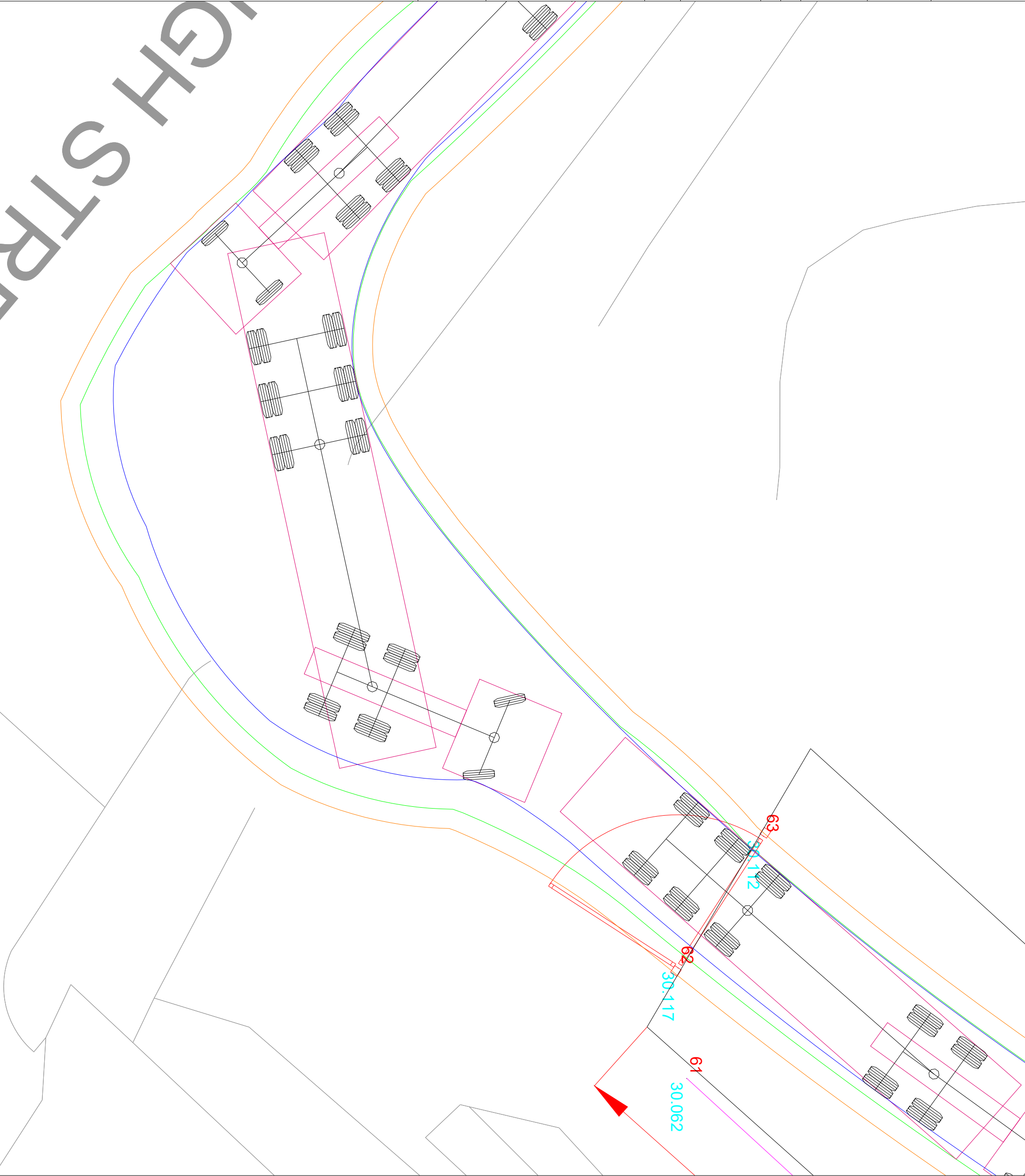
Scale = 1 Drawing unit: 1 Millimeter

Vehicle: Maximum length of an articulated vehicle

Length:16.5m      Width:2.55m

The provided Swept path provides an indication as to the tightness of maneuvers.This should not be the sole evidence in determining whether routes are possible, as real life conditions may impact maneuvers.

Blue Vehicle Line = Tyre Path  
Green Vehicle Line = Body Path  
Orange Vehicle Line = 500mm Clearance from the body



KE LOGISTICS  
2  
EVARD CROSSWAYS,  
NT, DA2 6SN

Client:

Site Location: Orchard Hill

Reference: OHV5-1      Drawn:02/07/2020

|            |        |                     |
|------------|--------|---------------------|
| Date:      | Issue: | Checked:            |
| 02/07/2020 | 01     | Signed: Matthew Cox |
|            |        |                     |
|            |        |                     |

|            |               |
|------------|---------------|
| Job No: 08 | Drawing No:01 |
|------------|---------------|

Site Measurements:  
N/A

Road Type:  
N/A

Notes:

Scale = 1 Drawing unit: 1 Millimeter

Vehicle: Maximum length of an articulated vehicle

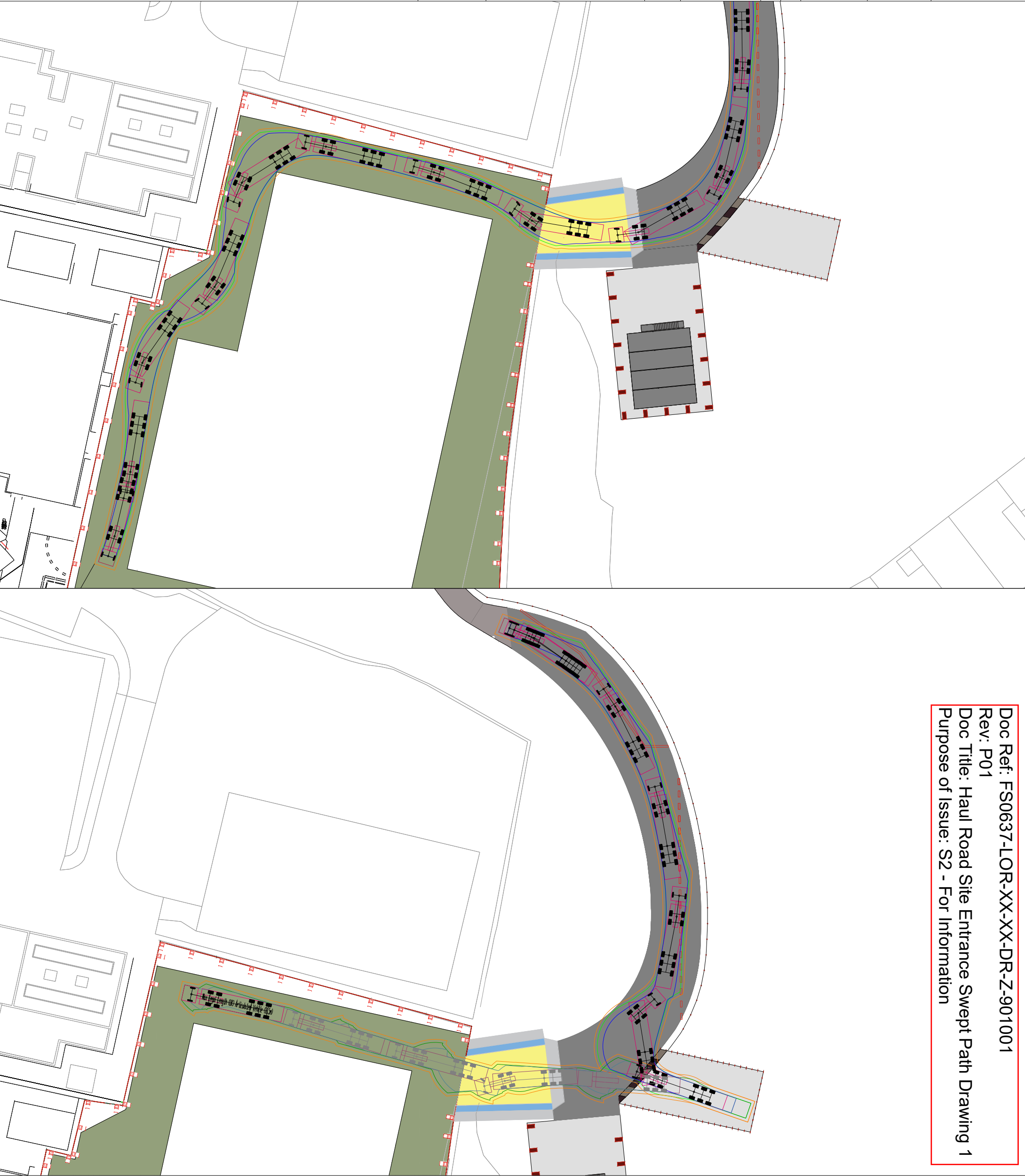
Length:16.5m      Width:2.55m

The provided Swept path provides an indication as to the tightness of maneuvers.This should not be the sole evidence in determining whether routes are possible, as real life conditions may impact maneuvers.

Blue Vehicle Line = Tyre Path

Green Vehicle Line = Body Path

Orange Vehicle Line = 500mm Clearance from the body



Doc Ref: FS0637-LOR-XX-XX-DR-Z-901001  
Rev: P01  
Doc Title: Haul Road Site Entrance Swept Path Drawing 1  
Purpose of Issue: S2 - For Information

KE LOGISTICS

2

EVARD CROSSWAYS,

NT, DA2 6SN

Client:

Site Location: Orchard Hill

Reference: OHV5-2      Drawn:02/07/2020

|            |        |                     |
|------------|--------|---------------------|
| Date:      | Issue: | Checked:            |
| 02/07/2020 | 01     | Signed: Matthew Cox |

|            |               |
|------------|---------------|
| Job No: 08 | Drawing No:02 |
|------------|---------------|

Site Measurements:  
N/A

Road Type:  
N/A

Notes:

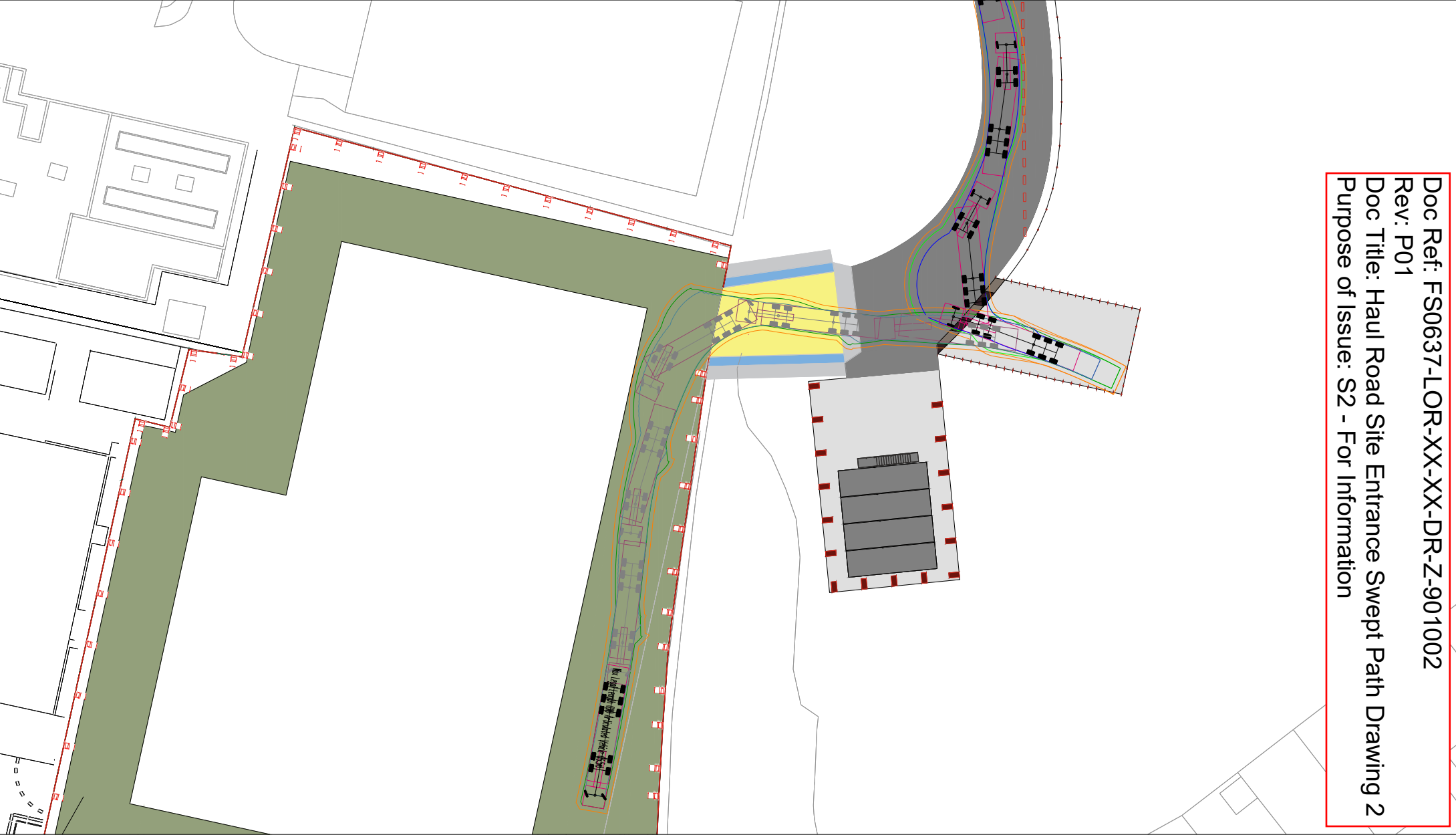
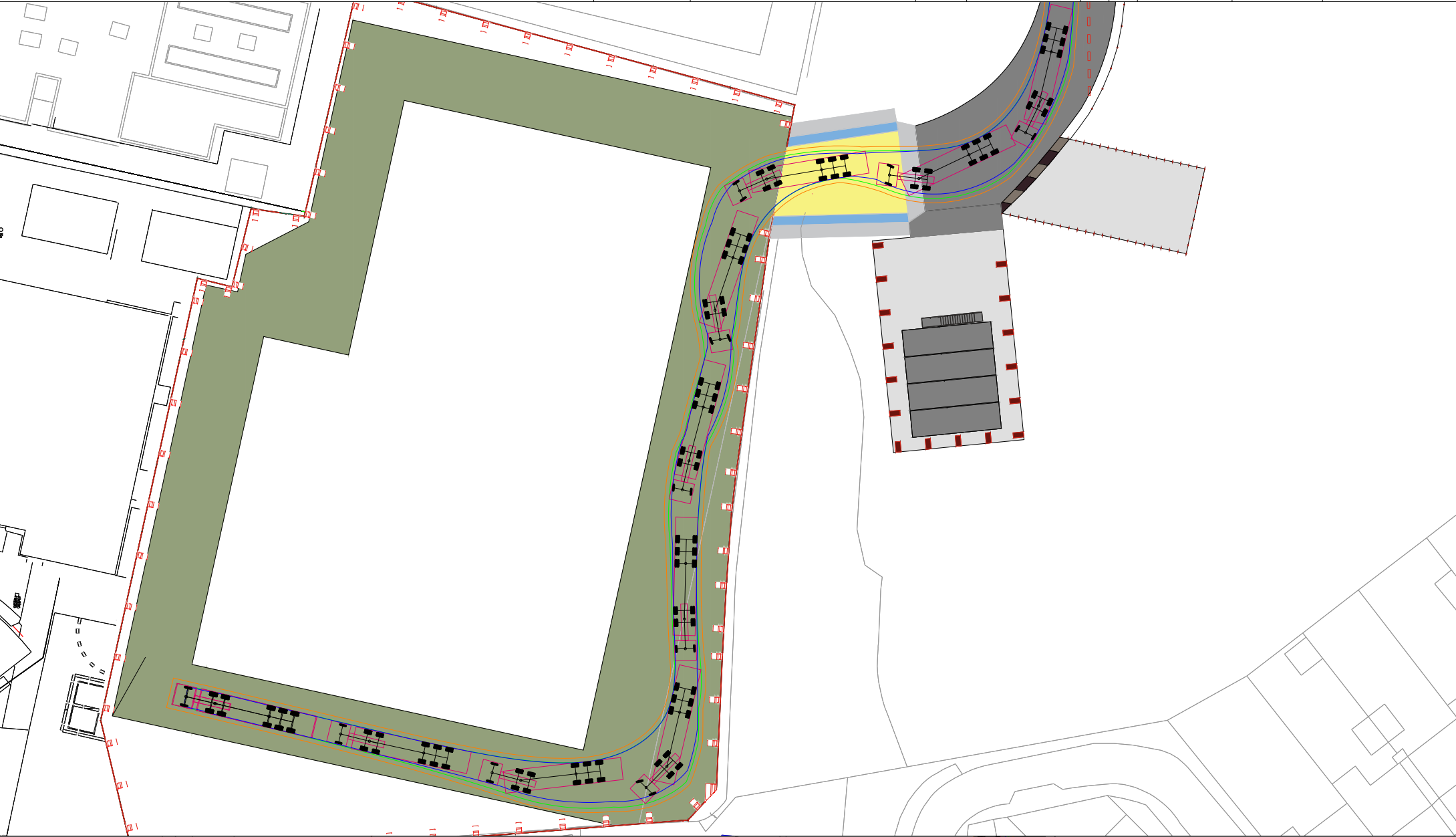
Scale = 1 Drawing unit: 1 Millimeter

Vehicle: Maximum length of an articulated vehicle

Length:16.5m      Width:2.55m

The provided Swept path provides an indication as to the tightness of maneuvers.This should not be the sole evidence in determining whether routes are possible, as real life conditions may impact maneuvers.

Blue Vehicle Line = Tyre Path  
Green Vehicle Line = Body Path  
Orange Vehicle Line = 500mm Clearance from the body



Doc Ref: FS0637-LOR-XX-XX-DR-Z-901002  
Rev: P01  
Doc Title: Haul Road Site Entrance Swept Path Drawing 2  
Purpose of Issue: S2 - For Information

## **APPENDIX C**

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Laing O'Rourke COVID Workplace Guidance Document

# Coronavirus (COVID-19): Operational Workplace Guidance

Revision 7 – In line with Construction Leadership Council (CLC) Guidance V5 published 04/07/20 and current BuildUK and National Government Guidance

## Contents

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| <b>Avoiding close working when in the workplace (social distancing)</b> | <b>4</b>  |
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## Introduction

This document has been developed to provide consistent guidance for the safe operation of Laing O'Rourke workplaces during the Coronavirus (COVID-19) pandemic. It has been produced in strict compliance with the [latest Government advice](#) as well as guidance issued by the Construction Leadership Council (CLC) and Public Health England (PHE).

Additional restrictions in [Scotland](#) and [Wales](#) have also been considered and workplaces should refer to specific and local guidance as necessary.

This document focuses primarily on our operational workplaces; such as Laing O'Rourke construction sites, head offices, manufacturing facilities and depots. However, where appropriate, should be applied across all UK Laing O'Rourke facilities.

The [HSE](#) is the relevant enforcement authority.

## Operational planning

Importantly, workplaces must ensure they involve their workforce in the preparation of their COVID-19 risk assessments and workplace action plans. Collective Insights and Planned v Actual Next Gear tools can then be used to ensure they are regularly updated, with the valued input and understanding of the entire team.

Consideration should be given to the following:

- To enable the implementation of appropriate social distancing measures you may need to reduce your site population size by reducing or rescheduling programmed activities to include only essential operations.
- Increasing sanitising regimes across all welfare facilities and areas where there is a risk of cross contamination: handrails, banisters, door handles / push plates, access equipment / routes etc. Ensure that hand-gel and hand-washing facilities are as widespread as possible and fully available to all.
- Restrict all non-essential visitors to site and permit only those authorised.
- Increase the use of signage and markings etc.
  - Floor markings, to indicate 2m distancing when queuing. or where not viable, 1m with risk mitigation after assessment
  - Signage reminding workers not to attend site if they have symptoms of COVID-19 and to follow guidelines.
- Ensure continued competent resource is available to implement the requirements of the Laing O'Rourke Safety Management System. Applying specific focus to higher risk operations of Lifting, Temporary Works, Live Electrical and Mechanical installations, Working at height, Underground services and Confined spaces.
- Ensure adequate levels of supervision and management resources to safely carry out the planned works. The minimum ratio of supervision to operatives is 1:10.
- Consider the availability of emergency response in the event of a serious incident, while appreciating some allowance may have to be made for delayed emergency service response times. All high-risk activities should take this into consideration.
- Remember there must never be less than one first aider to every 50 people on site.
- Stairs should be used in tandem with lifts and hoists. Where lifts or hoists must be used:
  - Lower the passenger capacity per journey to reduce congestion and contact.
  - Regularly clean touchpoints, doors, buttons etc.
  - Increase ventilation in enclosed spaces.
  - Regularly clean the inside of hoists and between use by different operators.
  - Please regularly take the opportunity to inform workforce personnel of all COVID-19 measures necessary to protect public health.

## Hand Washing

- Allow and encourage regular breaks to wash hands.
- Provide additional hand washing facilities to supplement the usual welfare facilities.
- Ensure adequate supplies of soap and fresh water are always readily available and kept topped up.
- Provide hand sanitiser (min. 60% alcohol base) if hand washing facilities unavailable.
- Regularly clean the hand washing facilities.
- Provide suitable rubbish bins for hand towels with regular removal and disposal.

## **Travel to / from a LOR workplace**

Where necessary, people may need to continue to work from home. Otherwise, all personnel must be encouraged to travel to site alone using their own transport and avoid public transport. To help facilitate this, personnel are advised of the following:

- If car sharing is unavoidable, keep the vehicle well ventilated, share the journey with the same individuals and with the minimum number of people.
- If working away from home and lodging at a temporary work address, while travelling to work with those that you co-habit with, sensible precautions around sanitation and distancing should be observed.
- Consider other means of transport e.g. a lift from a family member from the same household or by cycling to work.
- Clean all vehicles regularly inside and out, using gloves and standard cleaning products, with emphasis on handles and other areas regular touch points.
- Where public transport is the only option, avoid use during peak times (05:45 - 7:30 and 16:00 - 17:30) wear your masks and wash your hands thoroughly afterwards.

### **In addition, LOR workplaces should:**

- Provide suitable parking arrangements for additional cars and bicycles.
- Where public transport is the only option, you should consider changing and staggering site hours to reduce congestion on public transport.
- Remind workers that that face coverings are mandatory on all public transport
- Provide facilities such as lockers and showers for workers using other means of transport to avoid public transport (such as cycling)
- Provide hand cleaning facilities at entrances and exits. This should be soap and hot water or hand sanitiser if water is not available.
- Have a plan in place for how someone taken ill in the workplace might make the journey home or be taken home.

## **Site access & egress points**

- Introduce staggered start and finish times to reduce congestion and contact.
- Revise workplace access arrangements to reduce the risk of cross contamination via Aurora booths or biometric systems while still maintaining security measures.
- Introduce hand wash stations at each access and exit point, these should be used by everyone before entering and exiting the workplace.
- Consider and introduce alternative arrangements to keypads and hand scanners
- Regularly clean touch points on scanners, turnstiles, screens and other means of access, particularly during peak flow times.
- Install social distancing signage and floor markings to encourage queue controls.

## Driving at work

When travelling at work or between site locations, workers should travel alone. However, if workers have no option but to share a vehicle, then they should follow Government guidance on [working safely from a vehicle](#):

Wherever possible, maintain a 2m distance or, if not possible, 1m with risk mitigation e.g.

- If sharing, try to limit to the same individuals and the minimum number of people.
- Maintain good ventilation by keeping the windows open during the journey.
- Wash their hands for 20 seconds using soap and water, or hand sanitiser if soap and water are not available, before entering and after getting out of the vehicle.
- Regularly clean the vehicle using gloves and standard cleaning products, with emphasis on handles and other surfaces which may be touched regularly.

## Avoiding close working when in the workplace (social distancing)

Employers who have people in their offices or onsite should ensure that employees are able to follow [Public Health England guidelines](#) including maintaining an appropriate social distance from each other and washing their hands with soap and water or using an appropriate hand sanitiser, often and for at least 20 seconds.

- Non-essential work that requires close contact between workers must be avoided.
- Works should be re-assessed and planned to minimise contact between workers.
- Workers should be continually reminded of the importance of hand washing, including the optimum 20 second washing procedure, the need for regular breaks for hand washing, and use of anti-bacterial gel if soap and water is not available.
- Government's guidelines on social distancing refer to 'one metre plus' which is defined in Working safely during Coronavirus (Covid-19) – Construction and other outdoor work as "two metres or one metre with risk mitigation where two metres is not viable".

Mitigations could include installing screens, making sure people face away from each other, handwashing facilities, minimising the amount of time spent with people outside your household or bubble, and being outdoors.

If you are not able to work whilst maintaining a 2m distance, or 1m with risk mitigation where 2m is not viable, you should consider whether the activity should continue and, if so, risk assess it using the hierarchy of controls below and against any sector-specific guidance. The results of risk assessments should be shared with the workforce and the COVID compliance [poster](#) displayed in the workplace.

- Non-essential International travel is discouraged with Quarantine rules when returning from all [Higher risk Countries](#) and you will need to follow the [rules for entering the UK](#) including completing passenger locator forms and self-isolation for 14 days. See guidance for [England](#), [Scotland](#), [Wales](#) and [Northern Ireland](#).

## Hierarchy of Controls

If you are not able to work whilst maintaining a 2m distance, or if that is not viable, 1m with mitigation, you should consider whether the activity is essential. Where the work is deemed essential, and people need to work closer than 2m, then the task must be specifically risk assessed by applying the following hierarchy of controls illustrated overleaf:

## Hierarchy of Controls

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eliminate</b>                           | <p>To eliminate the COVID-19 risk:</p> <ul style="list-style-type: none"> <li>Workers who are unwell with symptoms of COVID-19 or who are not required for essential tasks should not travel to or attend the workplace.</li> <li>Rearrange tasks to enable them to be done by one person, or by maintaining the desired 2m social distancing measures.</li> <li>Eliminate tasks that involve working within 2m where possible.</li> <li>Set up the workplace to physically separate people (i.e. by setting up one ways access routes and using stairs as opposed to lifts or hoists).</li> <li>Adopt alternative methods and equipment to eliminate worker interface (i.e. via mechanical means).</li> </ul>                                                             |
| <b>Reduce</b>                              | <p>Where the 2m social distancing measures cannot be eliminated, risk mitigation could include the following:</p> <ul style="list-style-type: none"> <li>Minimise the frequency and time workers are within 2m of each other.</li> <li>Minimise the number of workers involved in these tasks.</li> <li>Require workers to always maintain as much distance as possible.</li> <li>Lower the number of persons permitted to travel in a lift or hoist to reduce congestion and contact.</li> <li>Retain records of persons on site to assist NHS Track and Trace as requested. These may be kept via Aurora or log in records.</li> </ul>                                                                                                                                   |
| <b>Isolate</b>                             | <p>Keep groups of workers that must work within 2m:</p> <ul style="list-style-type: none"> <li>Together in teams e.g. (do not change workers within gangs).</li> <li>In as small gangs as possible.</li> <li>Away from other work gangs where possible.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Control</b>                             | <p>Where it is essential to carry out a task when working within 2m:</p> <ul style="list-style-type: none"> <li>Introduce an enhanced authorisation process for these activities.</li> <li>Where face-to-face contact is unavoidable, this should be minimised and Respiratory Protective Equipment (RPE) worn.</li> <li>Provide additional supervision to monitor and manage compliance.</li> <li>Remind the workforce regularly of the specific COVID-19 measures that are necessary to protect their health.</li> <li>Increase ventilation in all rooms and enclosed spaces.</li> <li>Regularly clean common touchpoints, doors, buttons, handles, vehicle cabs, tools, equipment etc.</li> <li>Encourage hand washing before and after using any equipment.</li> </ul> |
| <b>Personal Protective Equipment [PPE]</b> | <ul style="list-style-type: none"> <li>Where it is not possible to maintain a 2m distance, each activity should be risk assessed and appropriate risk control measures applied.</li> <li>Re-usable PPE should be thoroughly cleaned after use and not shared. Cleaning guidance is available from all PPE manufacturers.</li> <li>Workplace guidance should cover responsible disposal of PPE.</li> <li>Government provides guidance on <a href="#">Face coverings: When to wear one, exemptions etc.</a> and <a href="#">BuildUK</a> also provides guidance but face coverings are now <b>mandatory</b> in site canteens unless seated to eat and drink.</li> <li>The <a href="#">LOR RPE Guidance</a> should be implemented in all workplaces.</li> </ul>                |

## Canteens and rest areas

- Canteens should follow Government guidance in ['Keeping workers and customers safe during COVID-19 in restaurants ... and takeaway services'](#) and use this [Food Standards Agency checklist](#). This means that **Face coverings** must now be worn in canteens, except when seated at a table to eat or drink.
- Public facing catering staff must also wear facial coverings and minimise customer contact and their employer is expected to provide these as part of their health and safety obligations. However, staff may use their own face coverings if they choose.
- Where facilities are not available, encourage people to bring in their own food/drink and provide a space for people to take a break whilst observing social distancing. Where social distancing of 2m is not possible, 1m with risk mitigation such as screens and seating reconfiguration may be considered and assessed.
- Consider increasing the number and / or size of facilities available on site. Projects are also asked to consider the impact of wet weather shelter.
- Measures should be taken to control the number of people in the canteen at any one given time, for example by using signage, floor markings, a rota and staggering breaks.
- The capacity of each canteen or rest area should be clearly assessed and identified, giving clarity on how many people can use it at any one time.
- Where possible, distributors should move to takeaway and away from hot food services to pre-packaged sandwiches etc (more akin to a retail offering).
- Provide hand washing at the entrance to rooms where employees eat or take breaks.
- Move all transactions to contactless and away from cash where possible.
- Frequently clean surfaces that are touched regularly, using standard cleaning products e.g. kettles, refrigerators, microwaves.
- Canteen staff should hand wash for at least 20 secs before and after handling food.
- Enhance the cleaning regimes for all welfare facilities, including changing or drying rooms and toilets. Focusing particularly on door handles, locks and the toilet flush.
- Consider increasing the number or size of facilities available on site if possible.
- Provide sufficient rubbish bins for hand towels with regular removal and disposal.
- Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently.

## Cleaning and hygiene

- Enhanced cleaning procedures should be in place across the site particularly in communal areas and on common touch points including:
  - Taps and washing facilities, toilet flushes and seats.
  - Door handles, push plates and handrails on staircases and corridors.
  - Lift and hoist controls, machinery and equipment controls.
  - Food preparation areas, utensils and eating surfaces.
  - Telephone equipment, keyboards, photocopiers and other office equipment.
  - Inside site vehicles and plant [e.g. steering wheels, door handles - particularly those used by multiple drivers and passengers].
- Provide suitable and sufficient rubbish bins, collection and storage points which should be emptied at least daily.

- Encourage increased personal hygiene arrangements through the availability of additional washing facilities.
- Adopt a sanitisation regime that enables cleaning regularly throughout the day.
- All cleaning waste and used PPE/RPE should be safely stored in a secure location, double bagged for at least 72 hours so it can then be put in with the normal waste.
- If storage for at least 72 hours is not appropriate, arrange for collection as a Category B infectious waste either by your local waste collection authority (if they currently collect your waste) or otherwise by a specialist clinical waste contractor. They will supply you with orange clinical waste bags for you to place your bags into so the waste can be sent for appropriate treatment ([See Gov.uk guidance](#))

### **Site Meetings**

- Encourage all meetings where possible to be held via VC / MS Teams / Zoom.
- Only essential participants should be invited physical meetings and the safe carrying capacity of the room should be assessed.
- Consider holding meetings outside in open areas where possible.
- Attendees should always sit at least 2m apart from each other.
- Where possible offices and facilities [incl. meeting rooms] should be kept well ventilated with windows opened to allow air to circulate.

### **Deliveries and drivers**

To help prevent the spread of coronavirus we ask that all drivers who enter our projects and locations of work, take the following measures:

- Vehicle windows should be kept closed and 2m social distancing maintained.
- If the vehicle window does need to be opened, security should stand 2m back.
- Do not share equipment such as tablet devices and pens. Drivers should be asked to complete their own paperwork.
- Where possible, drivers should stay in their vehicles. If they can't, they should wash their hands with soap and water before handling or touching anything.
- Workplaces should consider providing separate welfare facilities for delivery drivers.

### **Compliance Monitoring and Engagement**

To ensure effective implementation of this guidance it is important that the following monitoring and engagement measures are considered:

- All workplaces should schedule time every day to engage with their workforce, communicate any updates in operating procedures and encourage any questions and address any concerns.
- Managers and leaders should continue to make every effort to be visible to their work teams to encourage regular engagement.
- The workplace or Project Leader should sign and display the ['Staying COVID-19 Secure in 2020'](#) poster if they can satisfy its requirements.
- Specific workplace COVID-19 action plans should be printed and posted on an appropriate workplace noticeboard. As part of this, the workforce should be welcomed and encouraged to contribute to the plan.

- The Fatal & Severe Risk (FSR) for COVID-19 [\[iGMS\]](#) should be carried out by project teams and will assist in assessing compliance. Planned vs Actual reviews and Collective Insights should also be carried out by the team, focussing specifically on COVID-19 safe working practices.
- Allocate and encourage all staff, managers, supervisors and engineers to respectfully engage with people in the workplace to remind them of COVID-19 safe working practices, maintaining a 2m safe distance with a reduction to 1m with risk mitigation only where this is not possible, especially where you could predict complacency at:
  - Access points,
  - During Work;
  - During briefings;
  - Canteens,
  - Toilets and Drying Rooms;

Please encourage an open and collaborative approach between all people on site so any issues can be openly discussed and addressed without creating undue stress and conflict during this unsettling time.

### **Procedure to follow if someone feels ill at work**

Employees who feel ill should not travel into work. If an employee develops symptoms (COVID-19 symptoms [click here](#)) or feels ill whilst at work, the following applies:

- They must ensure their manager or supervisor is informed immediately.
- The individual should immediately return home, avoiding the use of public transport and avoid touching anything especially handrails or door handles etc on the way.
- Coughing or sneezing should be into a tissue which is immediately disposed of, or into a sleeve or the crook of their elbow if they don't have a tissue.
- Employees must follow the NHS guidance on [self-isolation](#) whilst at home and not return to work until their period of self-isolation is complete or they have a negative test result.
- Prior to returning to work after recovery from COVID-19, employees should follow [NHS guidelines](#) on ending self-isolation including getting a [COVID-19 test](#) and then also contact their appropriate LOR HC business partner or LOR Workforce manager.

Regarding the workplace where an individual operated when they developed symptoms:

- The workplace should be cleaned following [official guidance](#).
- Public areas where a symptomatic individual has passed through and spent minimal time, such as corridors, but which are not visibly contaminated with body fluids can be cleaned thoroughly as normal.
- All surfaces that the symptomatic person has encountered must be cleaned and disinfected, including objects which are visibly contaminated with body fluids and all potentially contaminated high-contact areas such as bathrooms, door handles, telephones, grab-rails in corridors and stairwells.
- Use disposable cloths or paper towels and disposable mop heads, to clean all hard surfaces, floors, chairs, door handles and sanitary fittings.

## COVID-19 Early outbreak management

For one or more confirmed COVID cases in a single location / workplace, please refer to the following [guidance](#) and make contact with your [local health protection team](#) (HPT).

## NHS COVID testing (essential worker status)

NHS testing is currently under pressure nationally, however employers can specifically refer [essential workers](#) for testing if they are self-isolating because either they or member(s) of their household have coronavirus symptoms. The details by which to do this can be found [here](#). Importantly, any previous 'key/essential worker status' (that was assigned to teams earlier in the pandemic) may no longer apply, so please speak to your project / workplace leadership team to check as to whether you currently qualify as an 'essential worker'.

## The NHS track & trace app / workplace QR codes

To assist in monitoring infection control, if personnel would like to download the [NHS app](#) then they should feel free to do so.

As a company, we request that our teams download an [NHS location QR code](#) for their workplace and display these at their entrances.

As a reminder, if your test is negative, other household members no longer need to self-isolate. If you feel well and no longer have symptoms similar to coronavirus, you can stop self-isolating (unless you have been contacted separately by NHS Test and Trace as a contact of someone who has tested positive).

## Workplace entry data

Site entry records will help to identify any persons present in the workplace who may have made contact with an infected person and assist in applying infection control.

Other personal records, such as entry temperature readings must be retained for up to 21 days and provided to the NHS 'Track and Trace' service upon request.

As a reminder, any medically sensitive data in relation to COVID should comply with GDPR protocols and should be treated with suitable confidentiality. The Information Commissioners Office (ICO) provides a [6 key steps](#) guide in relation to data protection and Coronavirus.

## Business continuity planning

Workplaces Project leadership teams should carry out continuity planning in order to ensure that their operations are as robust as possible in the event of an outbreak. This is particularly relevant to a project's senior management structure. Working from home, staff rotation and/or physical separation of blue / green teams may be useful considerations in this planning.

## Summary

Site specific activities may only be carried out if workplaces satisfy the following conditions:

- The health and safety of our people can be ensured by the implementation of Safe Systems of Work, in line with the LOR iGMS and legislative requirements.
- Workplaces implement the risk control measures in this document and as per current Government, Public Health England and Construction Leadership Council [Guidance](#).
- Project leadership teams should review their arrangements to ensure continuity of operations after any outbreak in their respective offices. e.g. staff rotation and/or physical constant separation of a blue and a green team.

As the COVID-19 pandemic situation develops, we will continue to monitor the advice from these bodies and issue further updates as necessary.

## USEFUL LINKS & DEFINITIONS

It is important to understand the following guidelines by which workers should or should not travel to work as outlined below:

### Social distancing

Workers in the construction industry should follow the guidance on [Staying alert and safe \(social distancing\)](#). Where they cannot work from home, they must follow the [Staying safe outside your home guidance](#) while travelling to and from work and while at work.

### Track and Trace and Self-isolation

**Aurora** or other entry control data must be retained and provided to NHS 'Track and Chase' on request to identify all persons in the workplace on any specific day.

Anyone who has been contacted by the [NHS Test and Trace Service](#), has a high temperature or a new persistent cough or is within 14 days of the day when the first member of their household showed symptoms of COVID-19, should not come to site, but must follow the guidance on [self-isolation](#).

### Clinically vulnerable people

The latest Government [guidance](#) suggests that clinically vulnerable people should still keep their social interactions low. If clinically vulnerable individuals cannot work from home, suitable roles on site should be discussed with their line manager, enabling them to maintain social distancing at all times. Particular attention should also be paid to people who live with clinically extremely vulnerable individuals.

### Persons defined on medical grounds as extremely vulnerable

There is a further category of people with serious underlying health conditions who are clinically extremely vulnerable, meaning they are at a very high risk of severe illness from

coronavirus. People who are clinically extremely vulnerable should have received a letter telling them that they are in this group or been told by their GP.

Severity, history or treatment levels will also affect who is in the group. The latest GOV.UK guidance is given here '[Guidance on shielding and protecting people who are clinically extremely vulnerable from COVID-19](#)'.

If you are clinically extremely vulnerable, you no longer need to follow the previous shielding advice and can go to work as long as the workplace is COVID secure, but you should still continue working from home wherever possible. You are advised to keep your overall social interactions low while keeping 2m distance (or 1m + other precautions) and washing hands frequently as before. Guidance in [Scotland](#) and [Wales](#) around the highest risk groups is slightly different.

We have previously requested that the clinically extremely vulnerable make themselves known to their line managers, who should then arrange a medical assessment with our service provider Optima under a management referral. Click or refer to the iGMS for a copy of the [management referral form](#). Following this medical, an individual workplace risk assessment should be carried out by both the team, and the individual concerned, to ensure specific controls are put in place to safeguard the individual. Click or refer to the iGMS to download a copy of the [checklist and risk assessment template](#).

### **If someone falls ill**

If someone develops a high temperature or a persistent cough at work, they should:

- Ensure their manager or supervisor is informed immediately.
- Safely return home as soon as possible.
- Avoid touching anything.
- Cough or sneeze into a tissue and put it in a bin, or if they do not have tissues, cough and sneeze into the crook of their elbow.

They must then follow the guidance on [self-isolation](#) and not return to work until they have received a negative test result or, in the event of a positive test result, their period of self-isolation has been completed.

### **Laing O'Rourke References**

Laing O'Rourke (Covid-19) Guidance is available from the [iGMS](#) and particularly the;

- Laing O'Rourke Coronavirus (Covid-19) Workplace Practical Measures
- Laing O'Rourke Coronavirus (Covid-19) Workplace Minimum Standards
- Laing O'Rourke Coronavirus (Covid-19) RPE Guidance
- Laing O'Rourke Coronavirus (Covid-19) FSR Checklist

**APPENDIX D**

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Crane Strategy

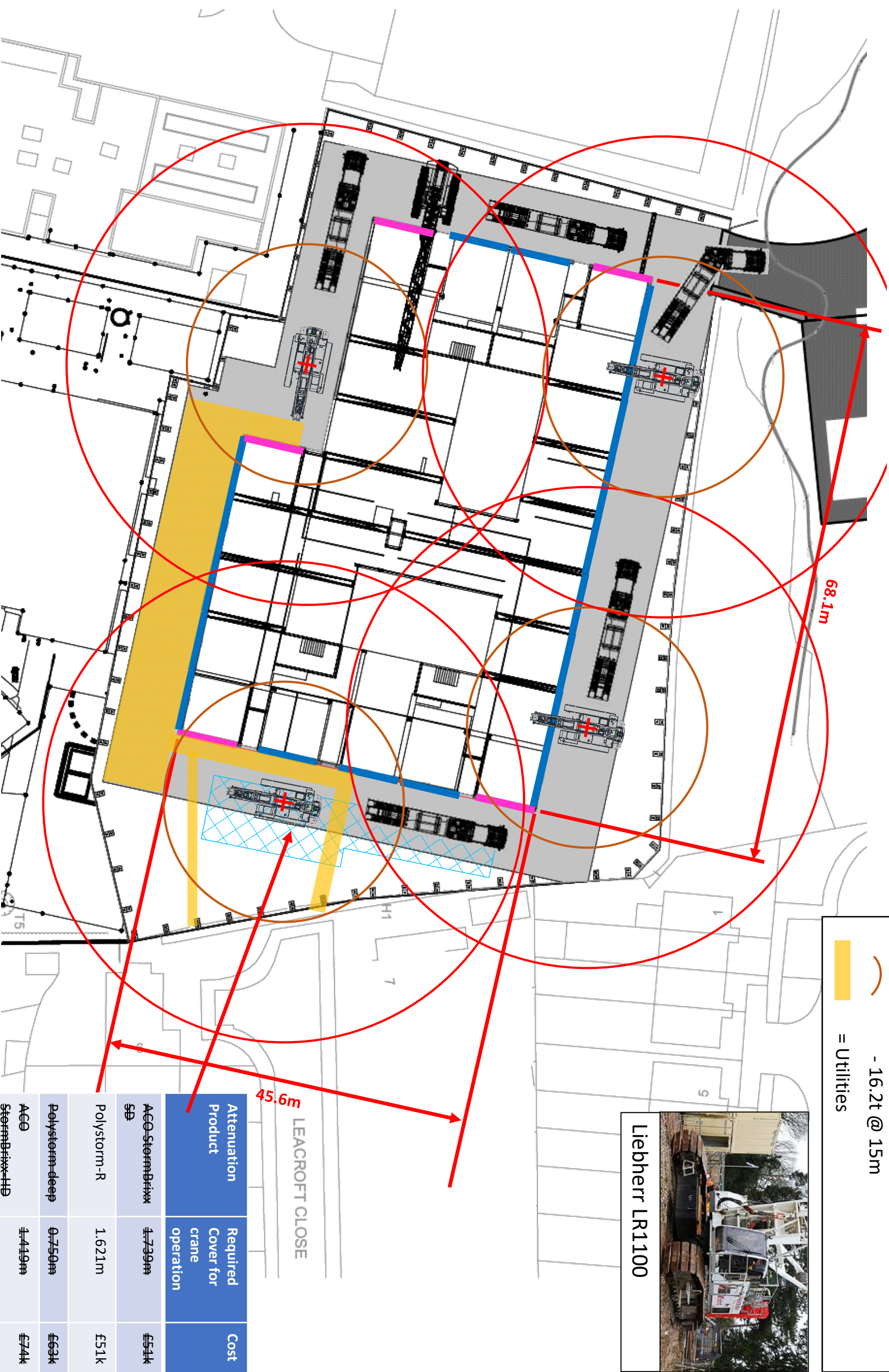
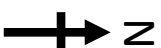
## **Orchard Hill – Crane Checks – Avoiding Utilities to South Elevation**

Date: 22/Apr/2020

Rev 03

Change(s):

- General crane layout added.
- Check on lifting of T-Beams added



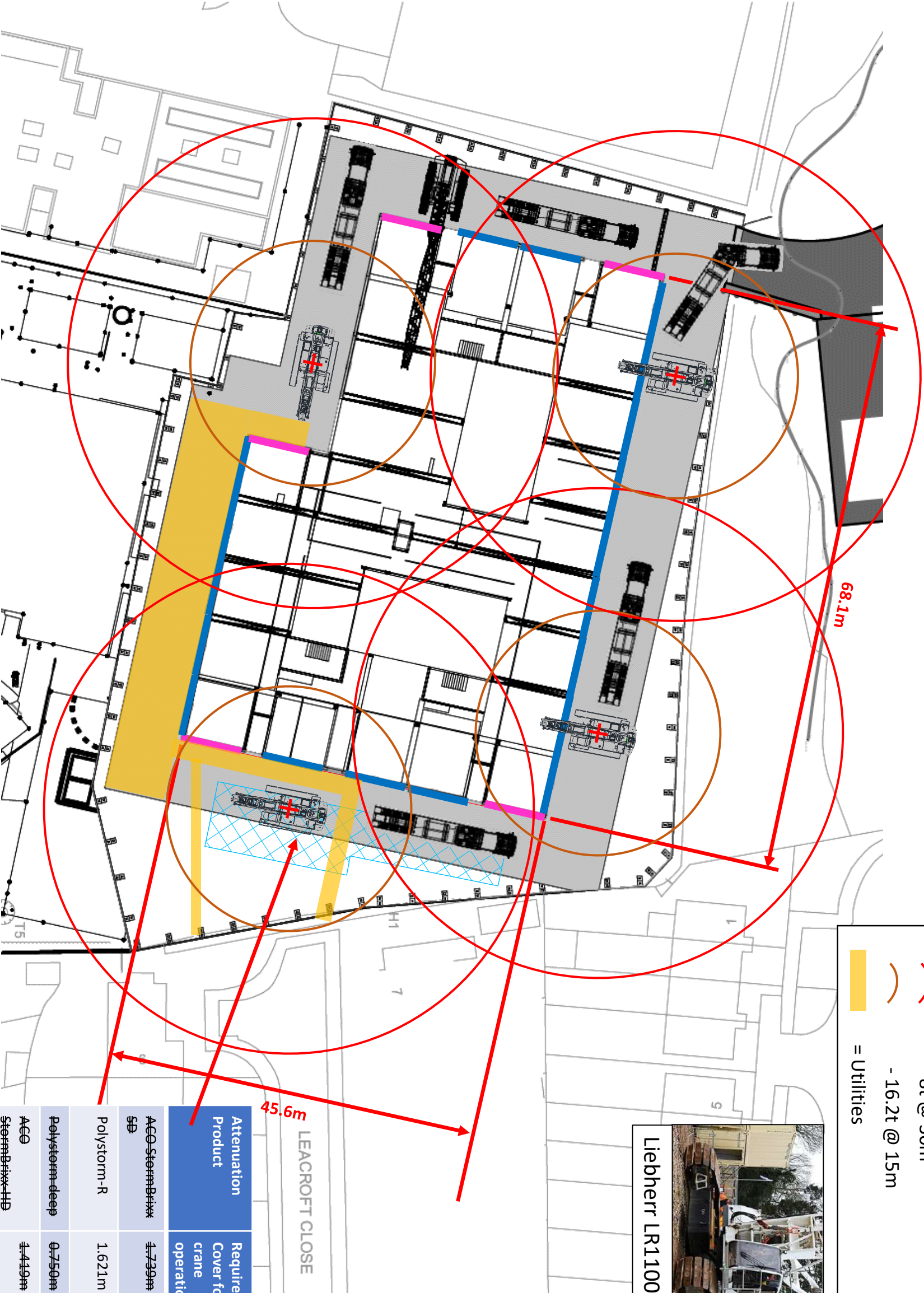
| Attenuation Product | Required Cover for crane operation | Cost |
|---------------------|------------------------------------|------|
| ACQ StormBreak SB   | £739m                              | £51k |
| Polystorm-R         | 1.621m                             | £51k |
| Polystorm-deep      | 0.750m                             | £63k |
| ACQ StormBreak HB   | £419m                              | £74k |

AND Ekki Timbers, cost = £23.2k

Orchard Hill – Crane Layout

Date: 31/Jan/2020, Rev 02

Change(s): Updated to suit the latest level and drainage drawings with the crane mat at 31.900mAOD



= Standard Sandwich Panels (8.01t)

= Solid PC Cladding Panel (16.2t)

Crane Lifting radii:

- 8t @ 30m

- 16.2t @ 15m

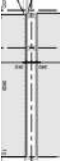
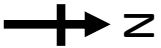
= Utilities



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| Attenuation Product             |  | Required Cover for crane operation | Cost |
|---------------------------------|--|------------------------------------|------|
| ACQ Stormfix SB                 |  | 1.739m                             | £51k |
| Polystorm-R                     |  | 1.621m                             | £51k |
| Polystorm-deep                  |  | 0.750m                             | £63k |
| ACQ Stormfix-HB                 |  | 1.419m                             | £74k |
| AND EKKI Timbers, cost = £23.2k |  |                                    |      |

Orchard Hill – Crane Checks – Lifting of T-Beams



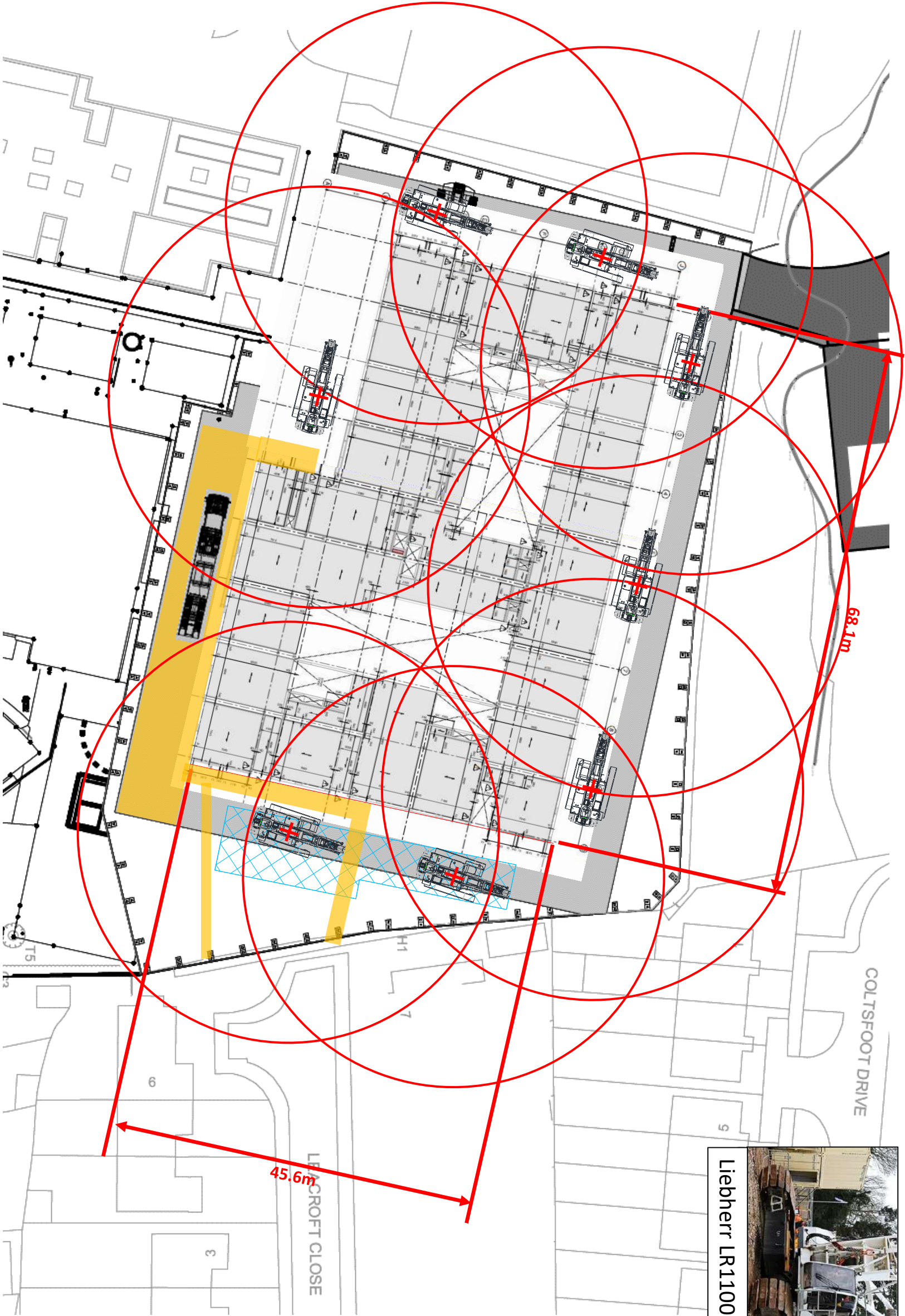
= T-Beams (8.5-9t)

Crane Lifting radii:

- 10t @ 26m



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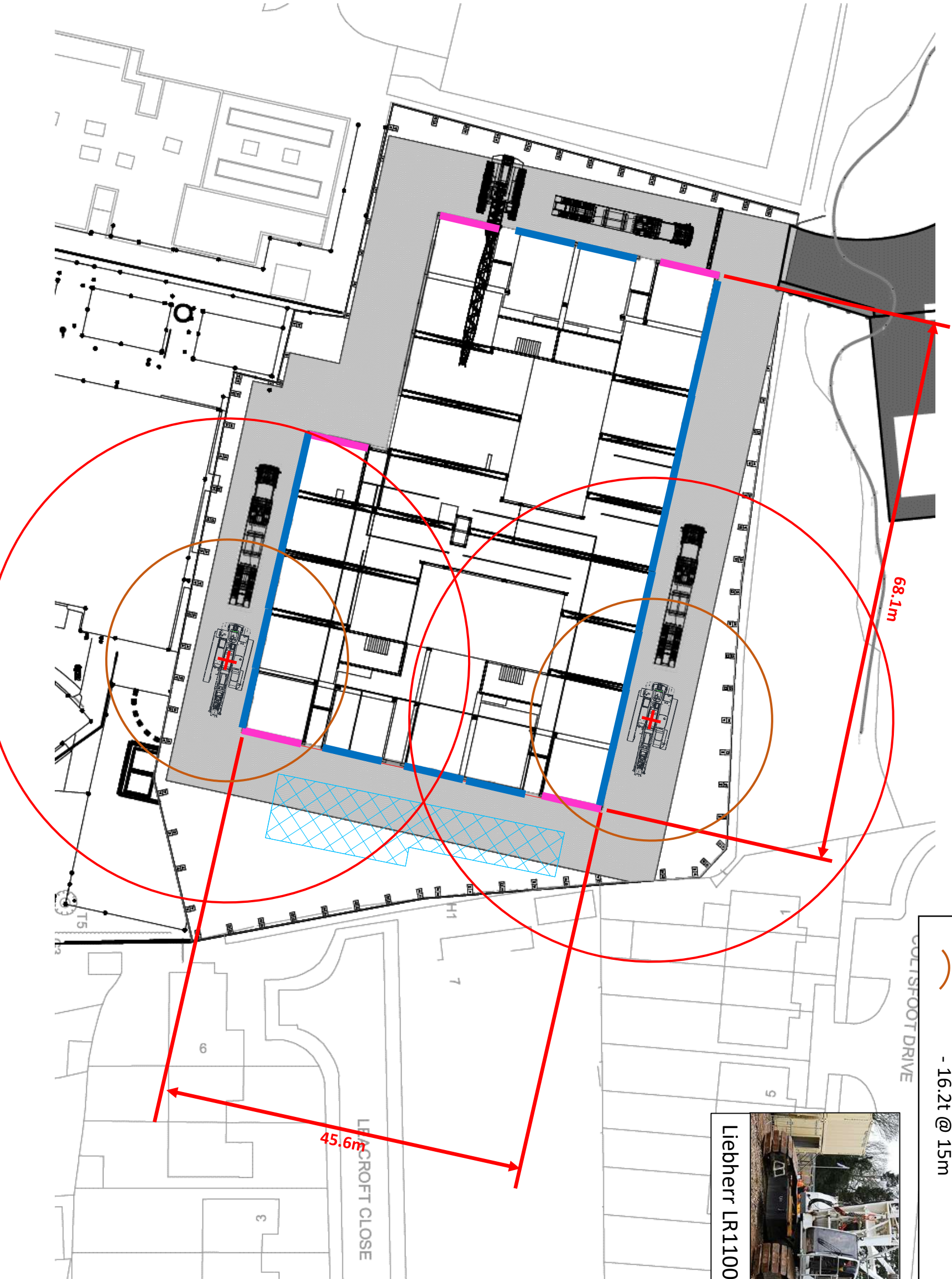
Orchard Hill – Crane Checks – Avoiding Cellular Storage to East Elevation



-  = Standard Sandwich Panels (8.01t)
  -  = Solid PC Cladding Panel (16.2t)
- Crane Lifting radii:
-  - 8t @ 30m
  -  - 16.2t @ 15m



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Orchard Hill – Crane Checks – Installation of Plant Rooms to Roof





= Mech Plant Room (dry) (12t)



= Elec Plant Room (6t)

Crane Lifting radii:



- 6t @ 34m



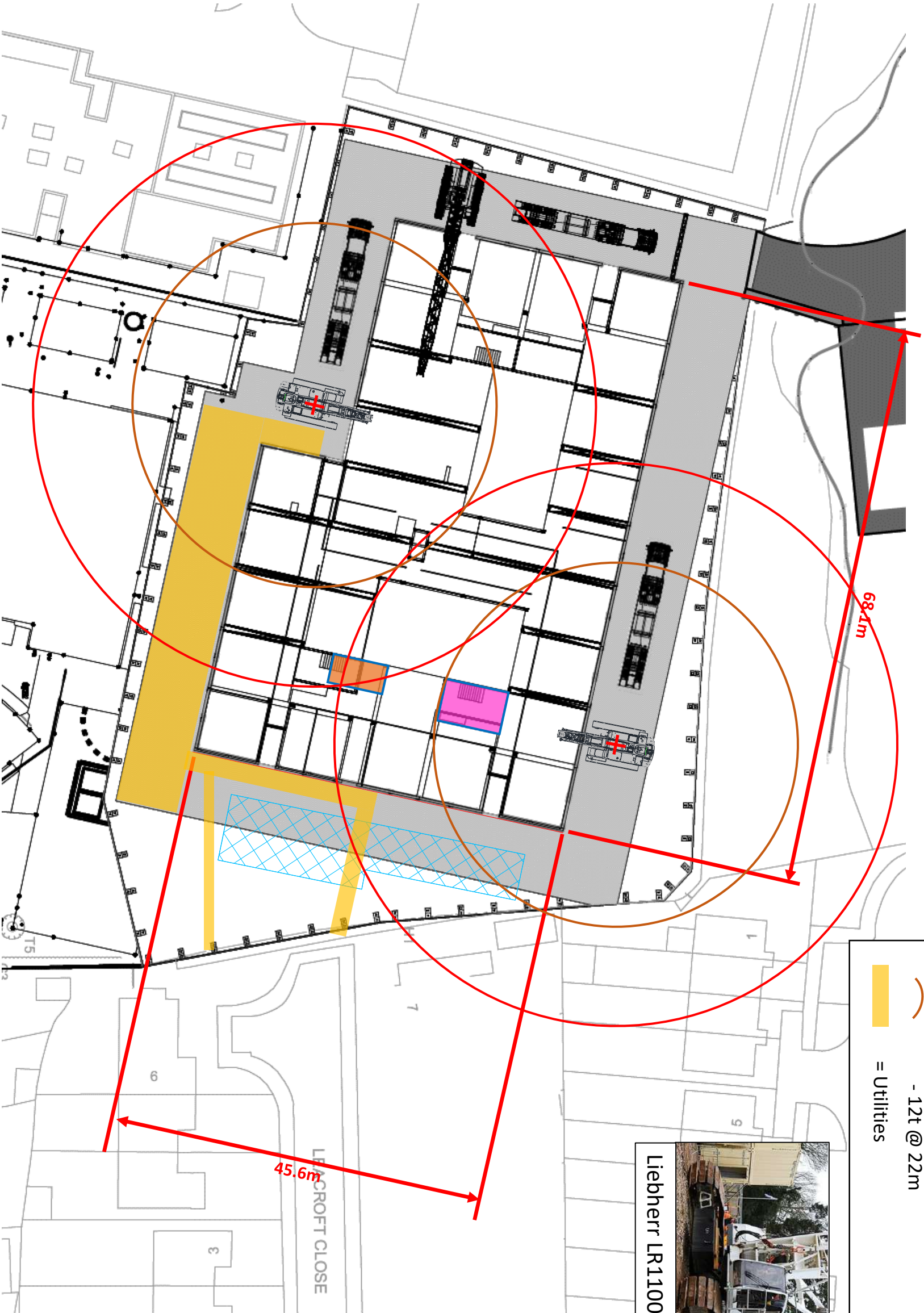
- 12t @ 22m



= Utilities



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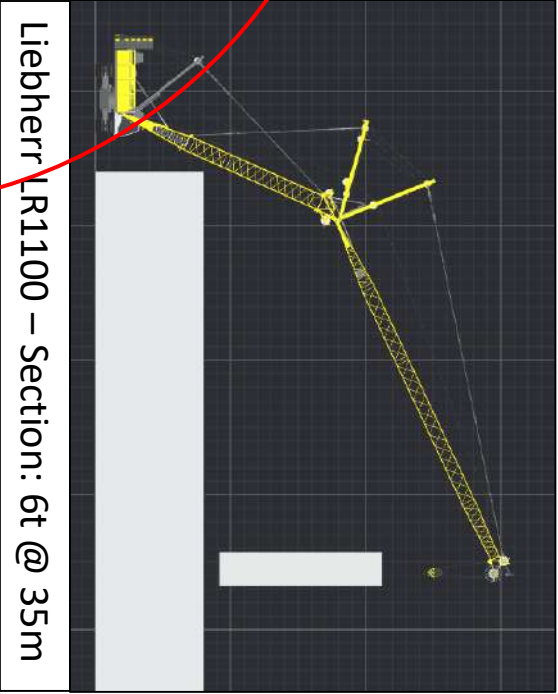
Orchard Hill – Crane Checks – Installation of Risers



= Risers (12m x 2.5m x 0.75m)(560kg)

Crane Lifting radii:  
- 6t @ 35m

= Utilities

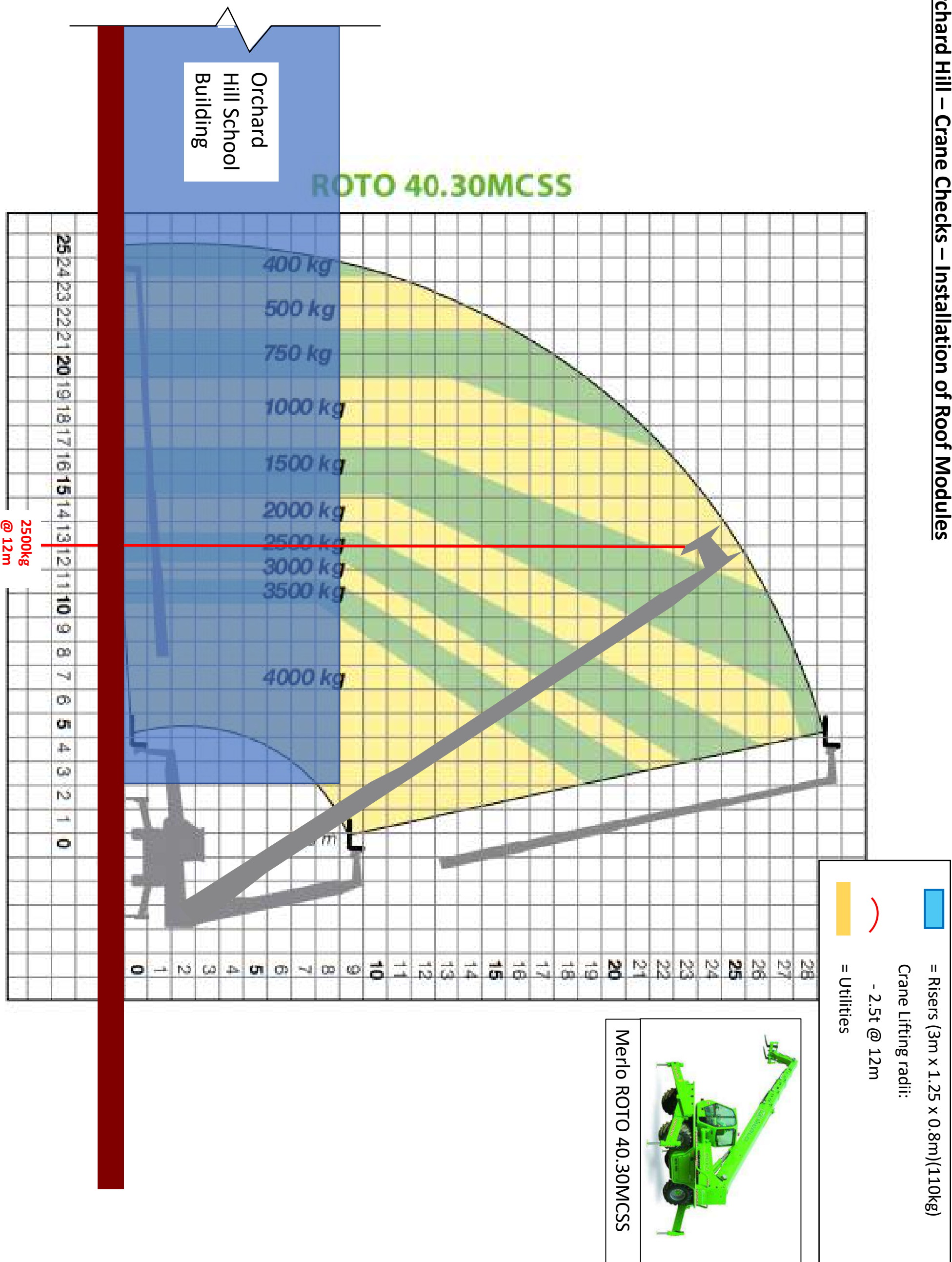


Liebherr LR1100 – Section: 6t @ 35m

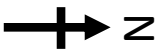


| Attenuation Product            | Required Cover for crane operation | Cost |
|--------------------------------|------------------------------------|------|
| ACO Stormfix SD                | 1.739m                             | £51k |
| Polystorm-R                    | 1.621m                             | £51k |
| Polystorm-deep                 | 0.750m                             | £63k |
| ACO Stormfix HD                | 1.419m                             | £74k |
| AND Eki Timbers, cost = £23.2k |                                    |      |

## **Orchard Hill – Crane Checks – Installation of Roof Modules**



Orchard Hill – Crane Checks – Installation of Roof Modules



= Risers (3m x 1.25 x 0.8m)(110kg)

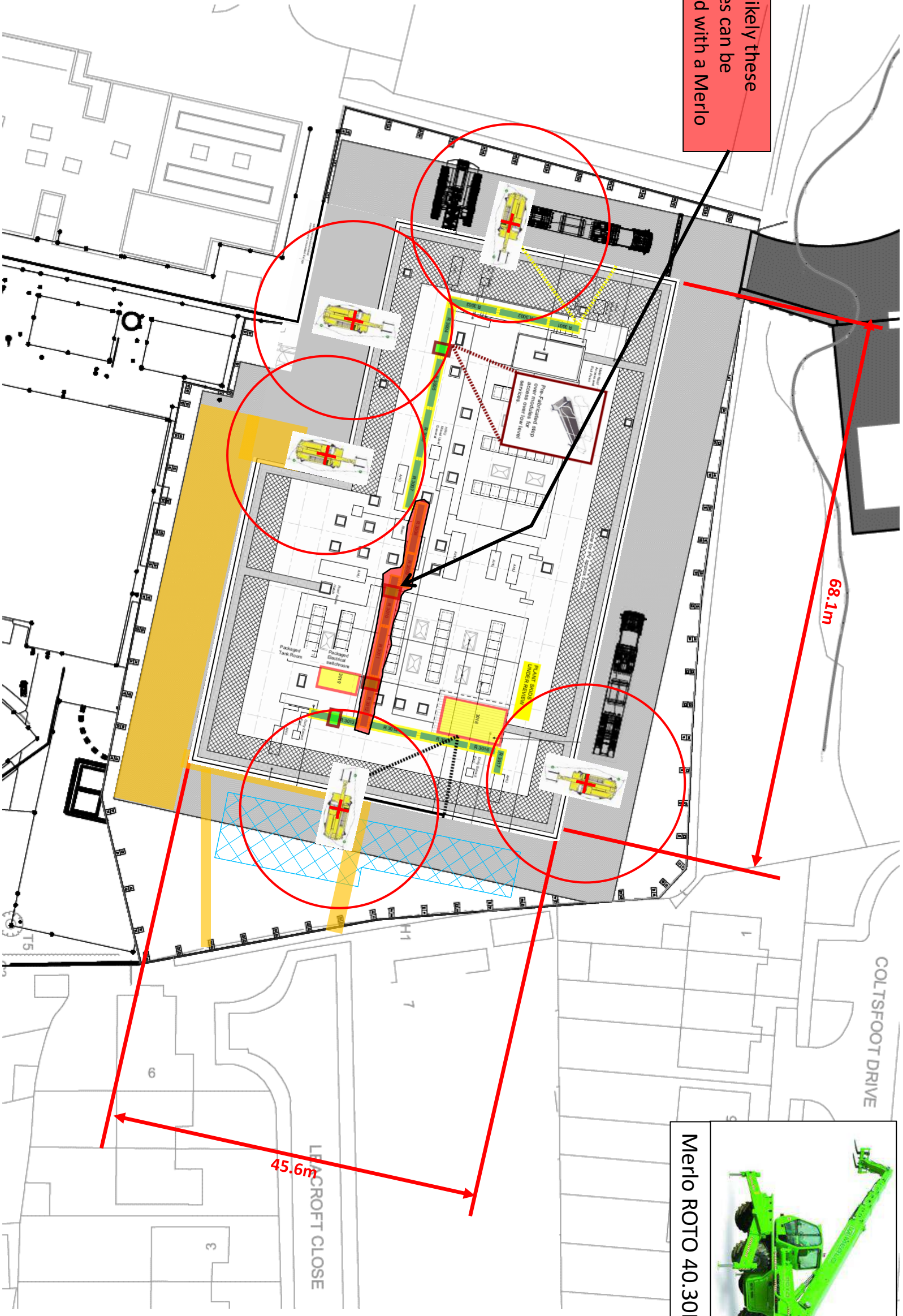
Crane Lifting radii:  
- 2.5t @ 12m

= Utilities



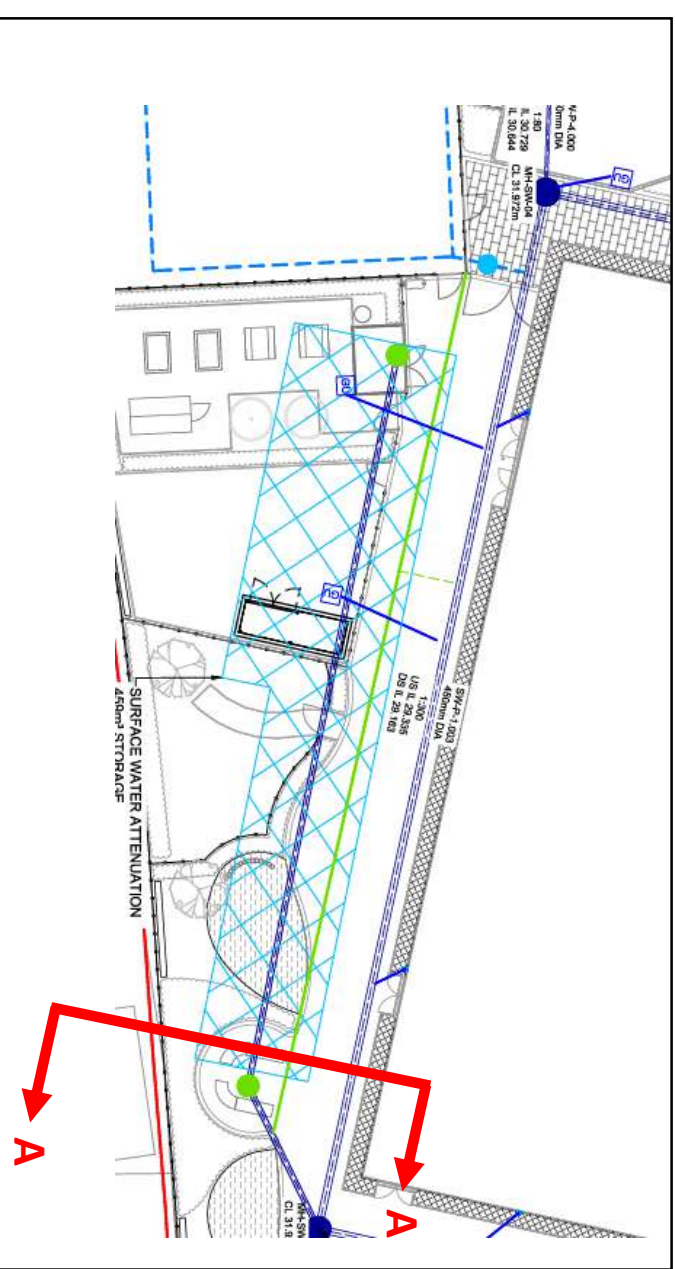
Merlo ROTO 40.30MCSS

It is unlikely these modules can be installed with a Merlo



## Orchard Hill – Cellular Attenuation Excavation

Cellular storage base level of  
+29.150mAOD as per  
drainage drawings issued  
12/11/2019 (FS0637-ATK-XX-  
XX-DR-C-921001\_P02

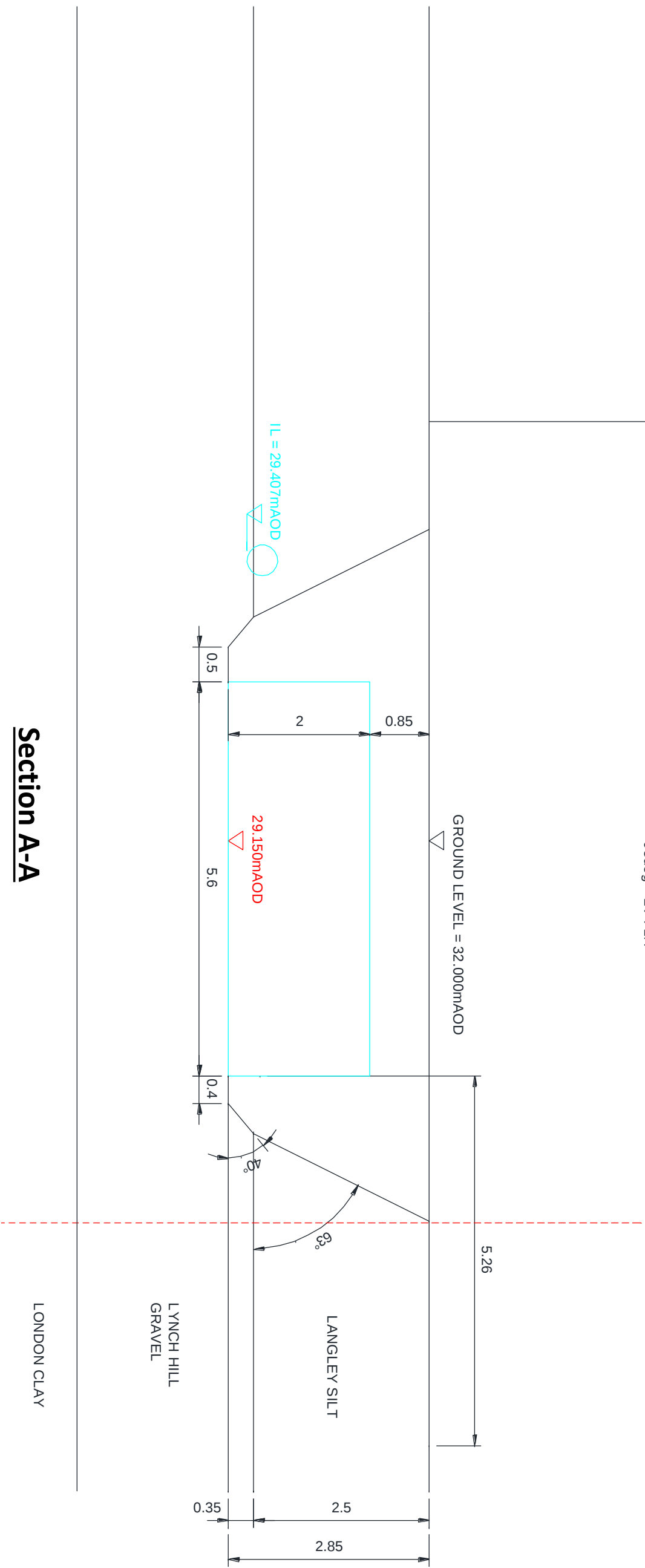


ORCHARD HILL  
SCHOOL  
BUILDING

Note: Batters taken from Orchard Hill EDB013:

- 40deg = 1V : 1.2H
- 63deg = 2V : 1H

**SITE  
BOUNDARY**



## Section A-A

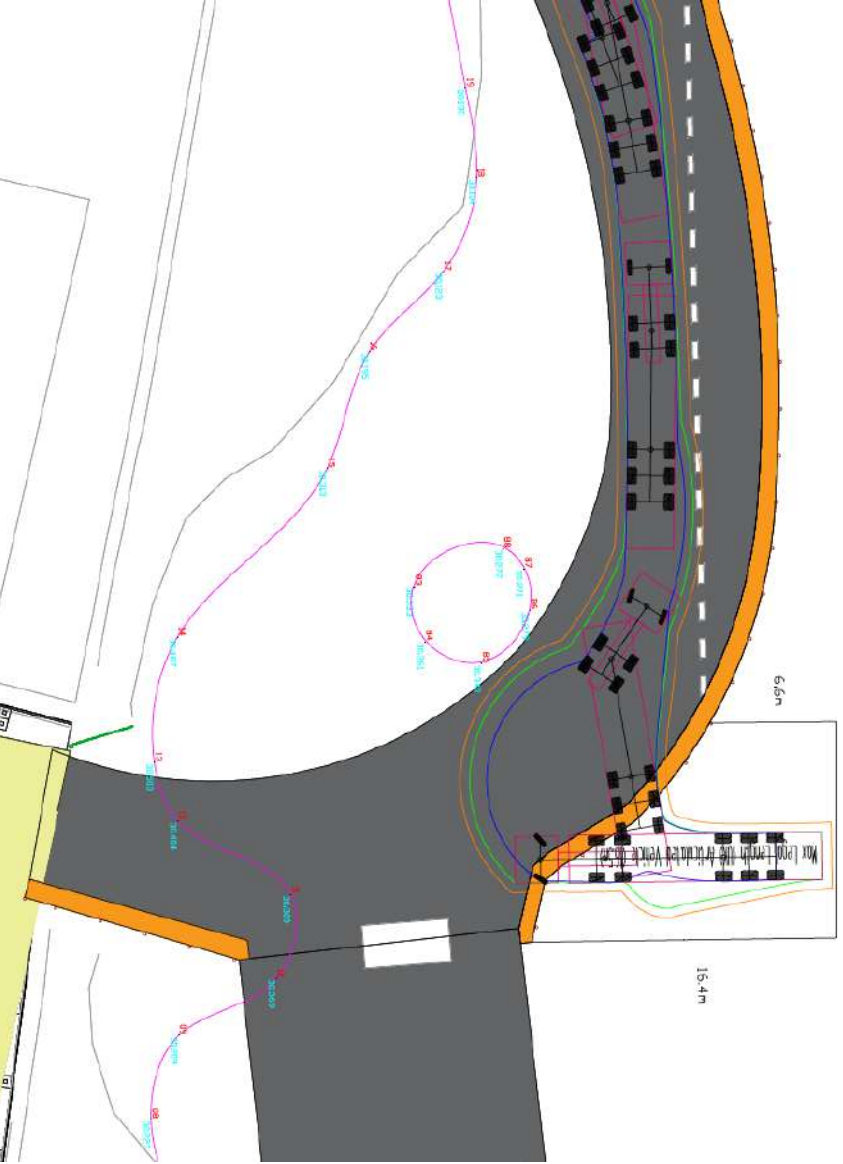
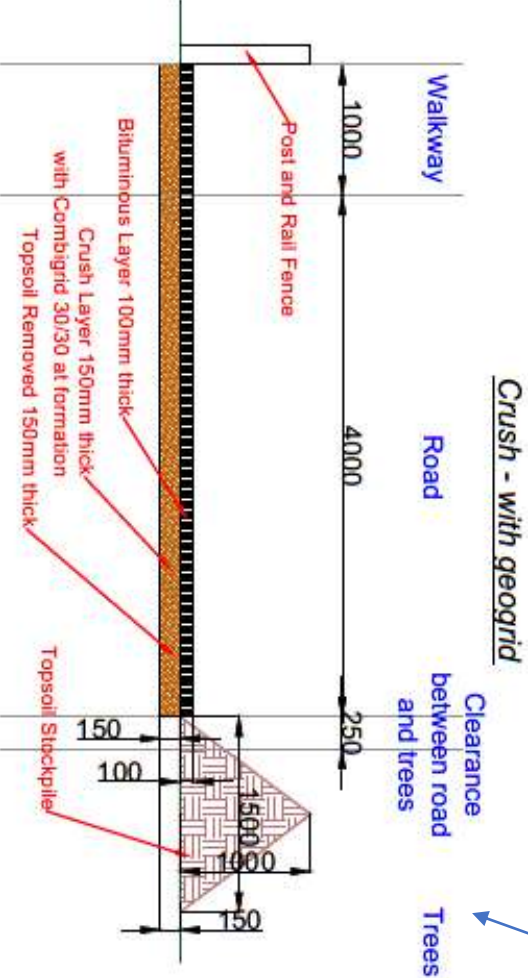
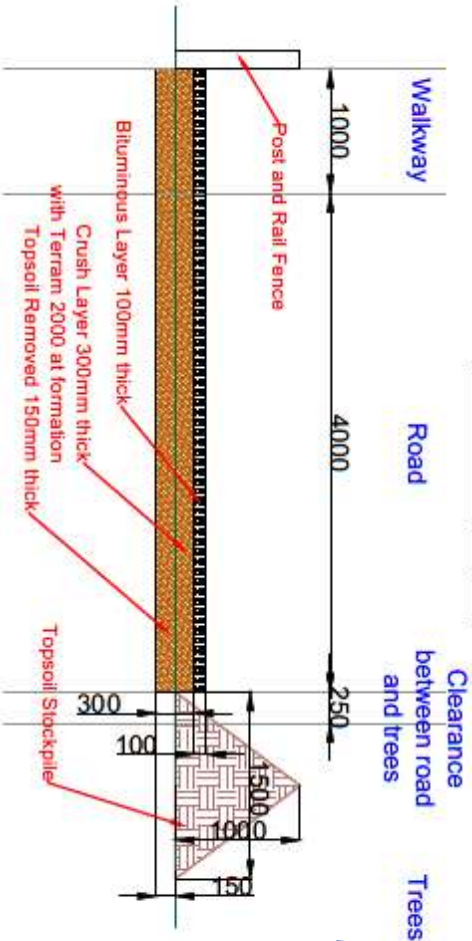
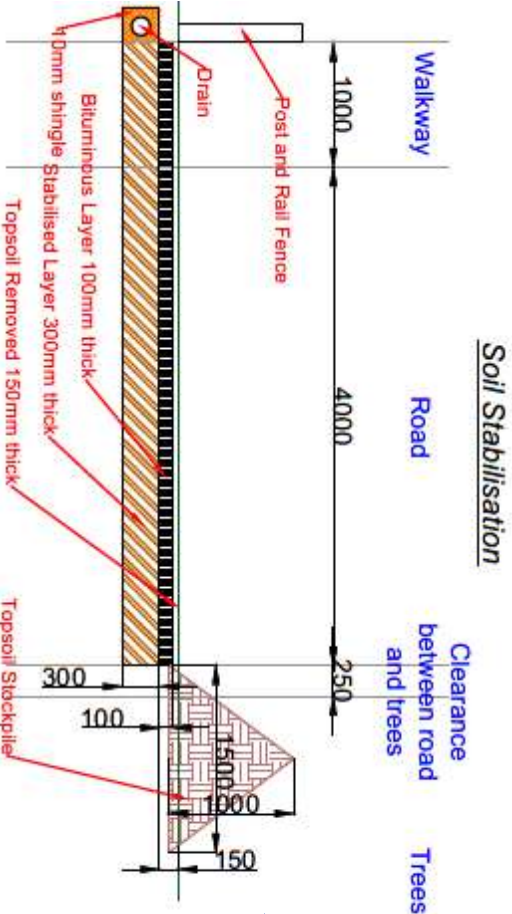
LONDON CLAY

Orchard Hill – Haul Road Options

Information from EDB006\_Rev01

| Layer Material              | Thickness (mm) | Underlain by                                         | Cost (NET) |
|-----------------------------|----------------|------------------------------------------------------|------------|
| Stabilised layer to CBR 15% | 300            | Not required                                         | £141.1k    |
| 6F2/6F5 Recycled Stone      | 300            | 1 layer geotextile, e.g. Terram 1000                 | £146.6k    |
| 6F2/6F5 Recycled Stone      | 150            | 1 layer geotextile-geogrid composition of UTS 30kN/m | £136.3k    |

Preferred option

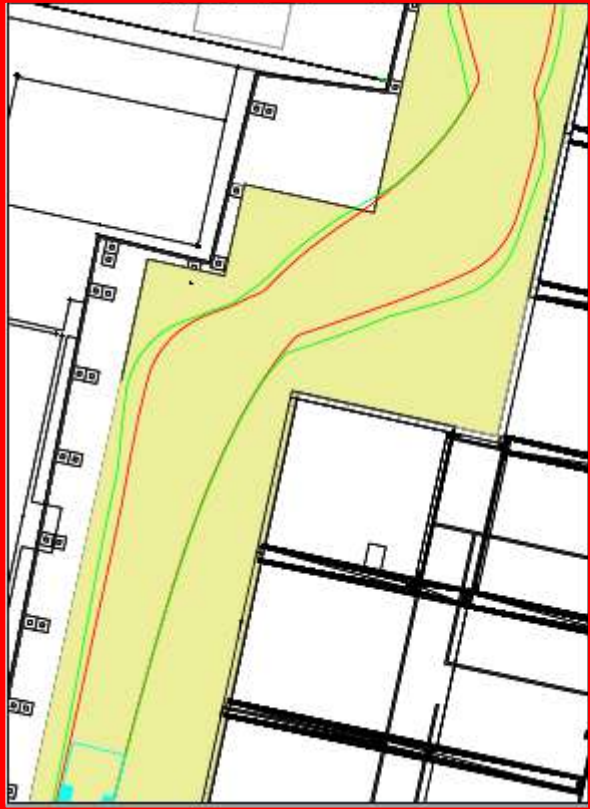
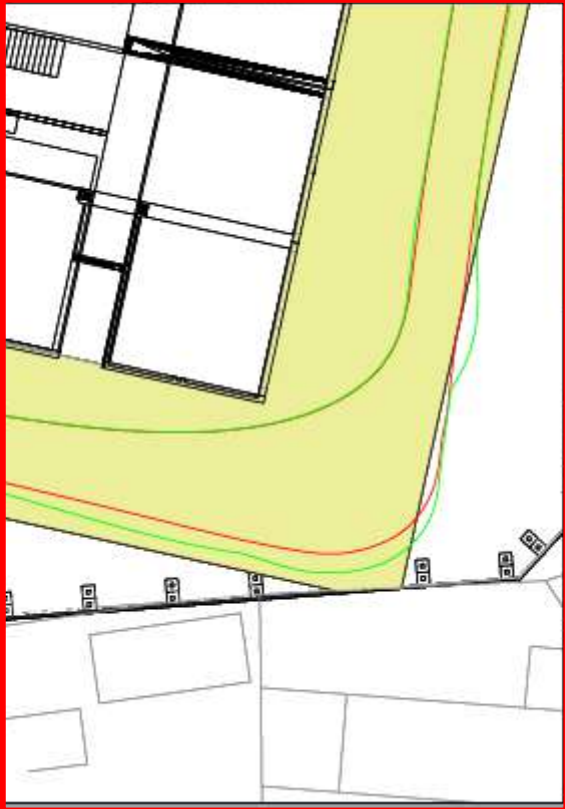
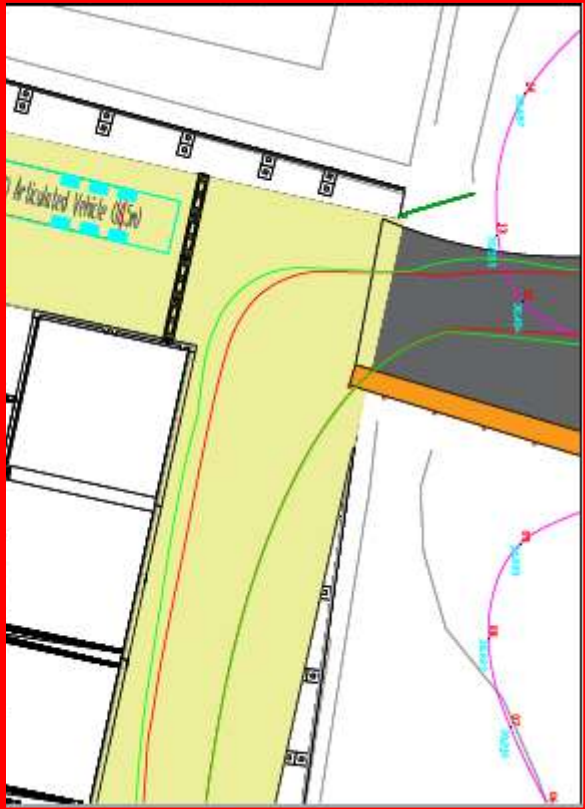


Orchard Hill – Crane Mat Options

Information from EDB006 Rev01

| Layer Material              | Thickness (mm) | Underlain by                                       |
|-----------------------------|----------------|----------------------------------------------------|
| Type 1 Stone                | 500            | 1 layer geotextile, e.g. Terram 1000               |
| Type 1 Stone                | 375            | 1 layer geotextile-geogrid composite of UTS 30kN/m |
| Type 1 Stone                | 325            | 1 layer geotextile-geogrid composite of UTS 40kN/m |
| Stabilised Layer to CBR 30% | 300            | Not required                                       |

Options to be priced and preferred option selected



## Orchard Hill – Levels Review

Last updated: 31/Jan/2020, Rev 02

2. Formation Level (Excavation depth to formation)
3. FFL (Build up to FFL)
4. Build up
5. (Type 1 thickness)

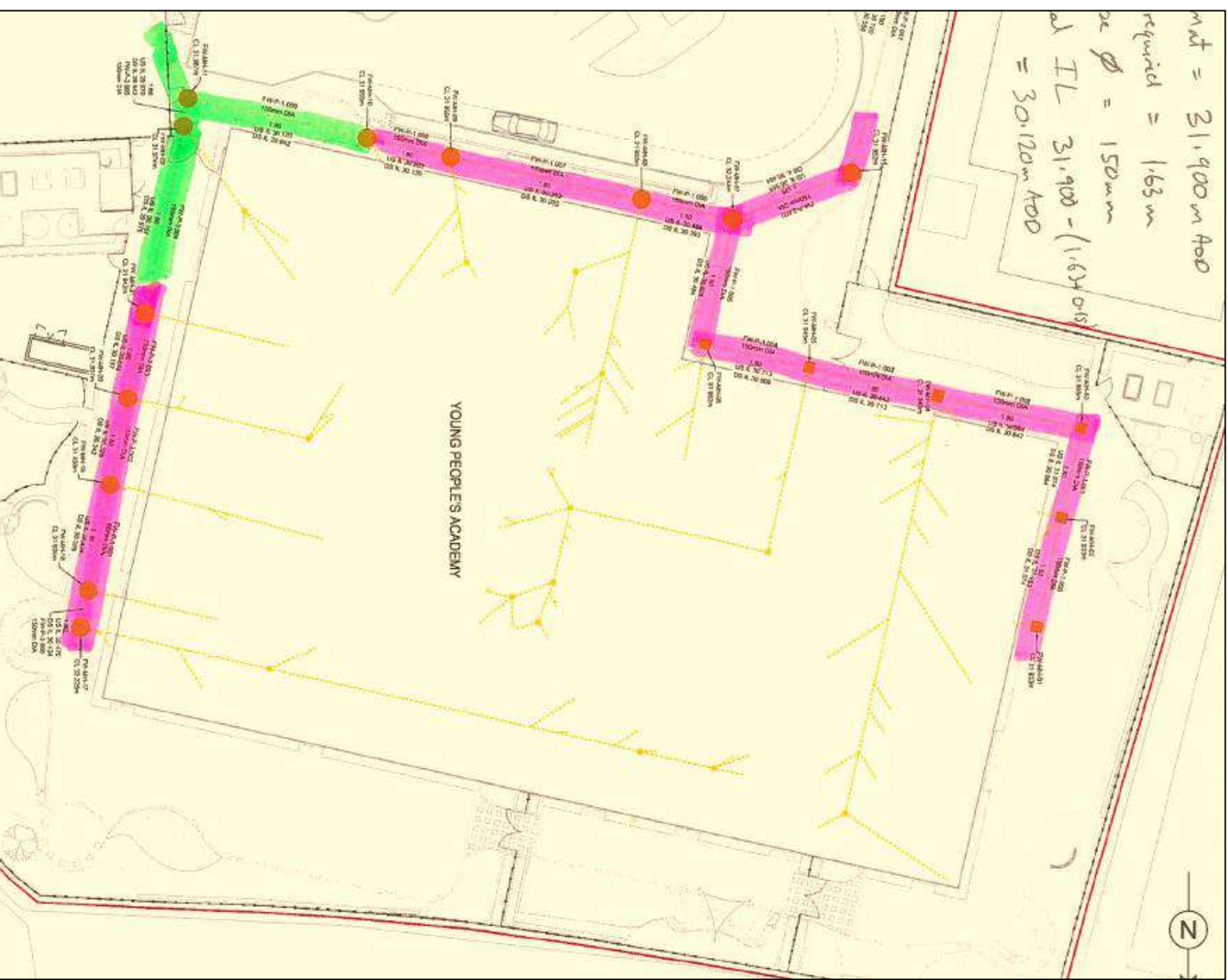
Recommendation: set Crane Platform at 31.900mAOD



Last updated: 31/Jan/2020, Rev 02

 = Crane can track and operate. Cover to pipework is more than 1.63m.

 = Crane can track, but for operation must sit on Ekki timber mats.



- = Crane can track and operate. Cover to pipework is more than 1.63m.
- = Crane can track, but for operation must sit on Ekki timber mats.

(FS0637-ATK-XX-XX-DR-C-921001)

(FS0637-ATK-XX-XX-DR-C-931001\_C02)

Orchard Hill – Crane Checks – Timber Eeki Mats Required to Protect Drainage

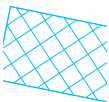
Last updated: 31/Jan/2020, Rev 02



68.1m

45.6m

LEACROFT CLOSE



= Crane can track and operate. Cover to pipework is more than 1.63m.



= Crane can track, but for operation must sit on Eeki timber mats.

= Crane can track, but for operation must sit on Eeki timber mats.

Note: Top of crane mat assumed to be at +31.9mAOD.



Liebherr LR1100

THIS MARK-UP ONLY CONSIDERS DRAINAGE – NO OTHER SERVICES HAVE BEEN CONSIDERED.

| Attenuation Product             | Required Cover for crane operation | Cost |
|---------------------------------|------------------------------------|------|
| ACO StormBrix SD                | 1.732m                             | £51k |
| Polystorm-R                     | 1.621m                             | £51k |
| Polystorm-deep                  | 0.750m                             | £63k |
| ACO StormBrix-HD                | 1.419m                             | £74k |
| AND Eeki Timbers, cost = £23.2k |                                    |      |

**APPENDIX E**

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Environmental & Sustainability Policies

## ENVIRONMENTAL & ENERGY

Laing O'Rourke is an engineering enterprise, focused on major construction projects and strategic programmes, delivering certainty for clients from the earliest engagement and throughout the project lifecycle. Through a focus on certainty of delivery we will maintain an enduring and sustainable enterprise.

We are committed to the protection and enhancement of the environment and to a continual improvement of energy performance. High environmental and energy performance is an ongoing priority and is achieved by our actions in line with this policy. This policy sits alongside our Sustainability and Supply Chain policies as part of our global policy framework, underpinned by our Global Code of Conduct.

Our goal is to minimise the negative environmental impacts of our operations and maximise the quality of the built environment for future generations. Through innovation and application of leading practice, we aim to steer the industry to design an environmentally sustainable and high-quality built environment through the whole asset lifecycle.

Our goal will be realised by:

- Demonstrating leadership of our environmental agenda by senior leaders
- Complying with relevant legislation and other requirements specific to the context of our business and regularly evaluating and reporting on our compliance obligations
- Preventing polluting emissions or discharges to the environment
- Proactively minimising environmental impacts, including minimising direct and embodied carbon emissions, and providing energy-efficient / low-carbon assets for our clients
- Continually improving the environmental and energy performance of our activities, products, services and associated management systems through clear objectives, targets and programmes
- Providing sufficient and competent resources and information to achieve our environmental and energy-related objectives and targets
- Exploring opportunities in the sourcing and lifecycle aspects of our products, services and supply chain to reduce carbon emissions, improve energy efficiency and demonstrate positive environmental outcomes
- Exploring opportunities for innovative technologies, products and processes that drive improved environmental outcomes / benefits and energy performance throughout the design, delivery and operation of the assets we build
- Communicating and addressing the risks and opportunities associated with the impacts of our activities, products and services
- Improving resource efficiency by reducing the use of natural resources and reducing waste, maximising resource recovery and diverting the waste we do produce away from landfill sites
- Reducing our water consumption and improving water efficiency in all of our operations
- Engaging our supply chain partners to improve their environmental performance and responsible sourcing of their materials, products and services
- Proactively protecting, preserving and exploring opportunities to enhance biodiversity and land quality
- Enhancing employee understanding of environmental sustainability by stimulating cultural change and providing clear direction
- Maintaining ISO 14001 certification for our principal businesses and progressing further certifications for our products and services as appropriate

The Board of Directors of Laing O'Rourke fully endorses this policy.



**Sir John Parker GBE**  
**Chairman**

## SUSTAINABILITY

Sustainability is about maximising our environmental, economic and socio-economic performance in the interests of the business, our stakeholders and our planet.

Laing O'Rourke is uniquely placed through our private ownership, operating model and value proposition to take a long-term approach to sustainability. This policy sits alongside our Health & Safety, Quality, Environmental & Energy, and Security & Business Resilience policies as part of our global policy framework, underpinned by our Global Code of Conduct.

As an enduring engineering enterprise, we are implementing a strategy which aims to create sustainable growth by meeting the economic, social and environmental challenges of our rapidly changing world.

Achieving sustainability is an integral part of fulfilling our corporate vision. We will continually strive and expect to:

- Create exceptional, long-term sustainable outcomes for all our clients, aligned to their ambitions
- Generate profits to invest in innovation and future success
- Work to the highest ethical, social and environmental standards
- Develop strategies that are informed by and aligned to the UN Sustainable Development Goals
- Achieve industry-leading low-carbon performance, and drive towards achieving net zero carbon
- Innovate to develop the industry's ability to address sustainability challenges
- Develop our people: they are our most important assets
- Attract and retain new people from diverse backgrounds and demographic groups to work in the industry, and for Laing O'Rourke particularly
- Contribute to development of construction skills in our local communities by providing access to apprenticeships and life-long learning aligned to our goals and vision
- Enrich the communities in which we work
- Assess and manage all significant environmental risks
- Engage our supply chain and partners to inspire innovation and to achieve our sustainability targets and objectives
- Be transparent in reporting on strategic targets

Collaboration with clients, supply chain, industry partners, research organisations and other stakeholders is fundamental to how we develop and implement a sustainability strategy.

Our policies are reviewed and updated regularly to be responsive to client needs and the world around us to make Laing O'Rourke the company of first choice for all our stakeholders, while challenging and changing the image of construction worldwide.

The Board of Directors of Laing O'Rourke fully endorses this policy.



**Sir John Parker GBE**  
**Chairman**

**APPENDIX F**

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Arboriculture Method Statement & Tree Protection Plan



# Orchard Hill College Academy

## Arboricultural Method Statement

### ESFA Schools Construction Framework

April 2020



# Notice

This document and its contents have been prepared and are intended solely for the ESFA Schools Construction Framework's information and use in relation to the proposed works at the Orchard Hill College Academy Trust.

Atkins Ltd. assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 31 pages including the cover.

## Document history

| Revision | Purpose description | Originated | Checked | Reviewed | Authorised | Date     |
|----------|---------------------|------------|---------|----------|------------|----------|
| P01      | For planning        | TD         | AA      | -        | JH         | 03.04.20 |
|          |                     |            |         |          |            |          |
|          |                     |            |         |          |            |          |
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|          |                     |            |         |          |            |          |

## Client signoff

|                         |                                     |
|-------------------------|-------------------------------------|
| Client                  | ESFA Schools Construction Framework |
| Project                 | Orchard Hill College Academy        |
| Job number              | 5187523                             |
| Client signature / date |                                     |

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# 1. Introduction

## 1.1. Terms of reference

Atkins Limited (Atkins) has been commissioned through the ESFA Schools Construction Framework to produce an Arboricultural Method Statement (AMS) in accordance with the British Standard BS 5837:2012 *'Trees in Relation to Design, Demolition and Construction – Recommendations'* in support of proposals to improve and create additional teaching accommodation at the Orchard Hill school, Hillingdon.

This AMS is to satisfy pre-commencement planning condition items 5 and 7 for the proposed scheme. It reports on the protection measures and site-specific mitigation measures to protect retained trees on site.

The AMS should be read in conjunction with the Tree Protection Plan (TPP), which is included within Appendix D of this report.

## 1.2. Description of the Scheme

The scheme proposes demolition and construction operations to create two new separate and independently functioning zones, namely the Young People's Academy and Young People's Hub.

The new school shall be a hybrid between a primary school, in scale, and a secondary school, in terms of sports and vocational requirements. All-weather sporting facilities shall also be provided, along with the upgrading of boundary fencing in places.

The layout of the proposals has been overlaid on to the TPP to determine which trees are to be retained as part of the works and the requirements for mitigation measures.

The AMS has also been informed using the following drawings:

- Fencing Strategy Southern Area – FS0637-ATK-Z2-XX-DR-L-911004; and,
- Planting Plan Southern Area – FS0637-ATK-Z2-XX-DR-L-981021.

## 1.3. Scope of works

This report relies on arboricultural information captured by Atkins' Arboricultural Team Leader and Landscape Manager Tom Dale BSc (Hons), Cert Arb L6 (ABC), M.Arbor.A.

It supersedes data provided within previous arboricultural information captured by The Landscape Partnership Ltd. Document reference E17865 Orchard Hill College TS.

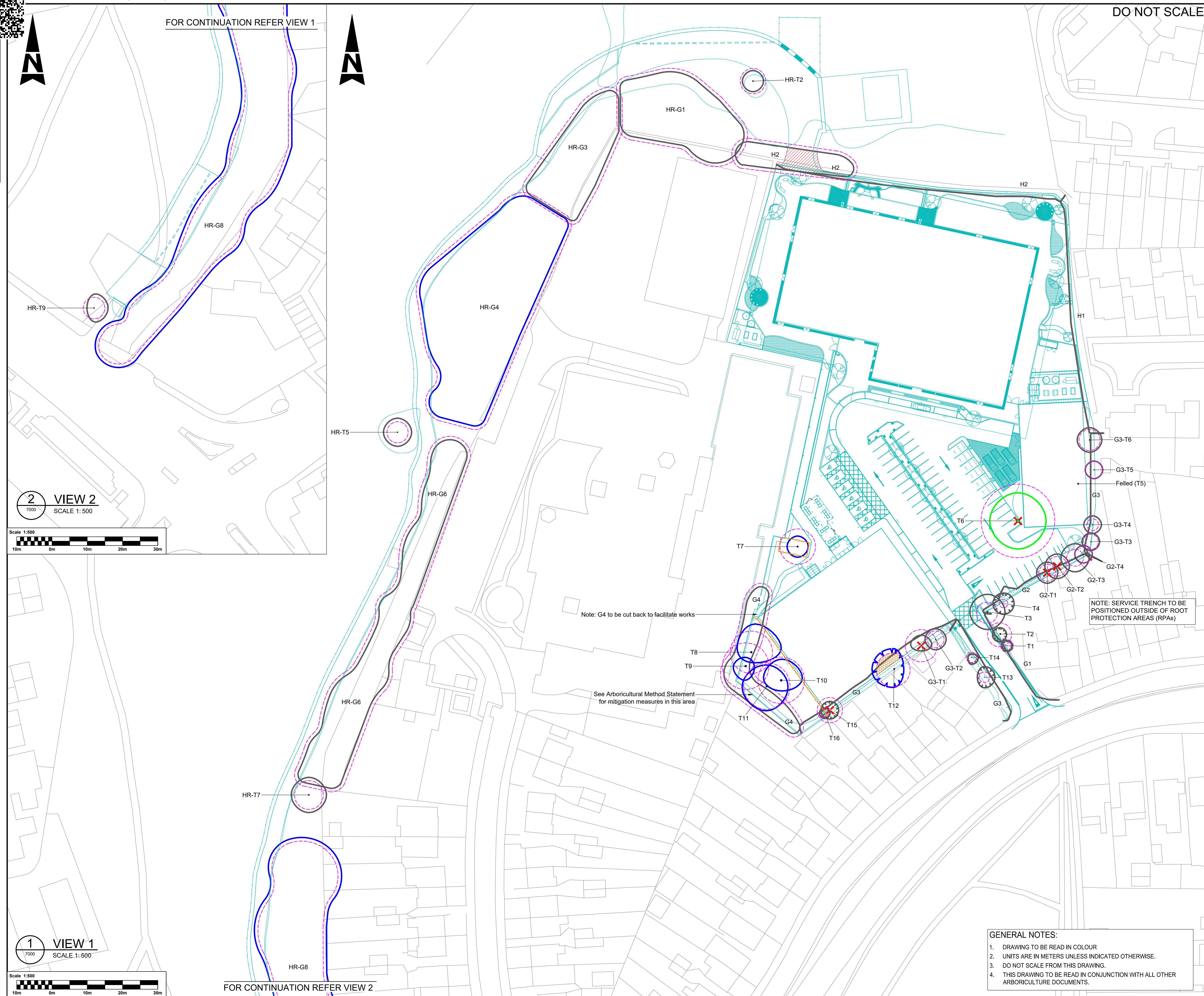
The scope of works includes: the preparation of an AMS to satisfy pre-commencement planning condition items 5 and 7 for the proposed scheme.

## 1.4. Data gathering

Tree data were collected in accordance with the British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*, as outlined in Appendix A of this report. The purpose of the tree categorisation method applied by the arboriculturist is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning any tree works and protection measures required to facilitate the works.

For a tree to qualify under any given category, it should fall within the scope of that category's definition as shown at figure A2 in Appendix A (categories U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three sub-categories (1, 2, 3). Sub-categories 1, 2 and 3 are intended to reflect arboricultural qualities, landscape qualities and cultural values respectively.

The trees were assessed in line with the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994). This method is based on the axiom of uniform stress, whereby a tree will grow in response to environmental stimuli to produce a structure that bears forces evenly across its surface. As such an internal defect, such as decay, would initiate a noticeable change in the stem's shape to accommodate the physical change.



## SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

## CONSTRUCTION

Refer to designer's risk assessment

## MAINTENANCE/CLEANING

Refer to designer's risk assessment

## DECOMMISSIONING/DEMOLITION

Refer to designer's risk assessment

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

**KEY:**

-  CATEGORY A TREE / GROUP /  
WOODLAND / HEDGEROW.
-  CATEGORY B TREE / GROUP /  
WOODLAND / HEDGEROW.
-  CATEGORY C TREE / GROUP /  
WOODLAND / HEDGEROW.
-  CATEGORY U TREE / GROUP /  
WOODLAND / HEDGEROW.

- T000 / G000 /  
W000 / H000
- REFERENCE NUMBER:  
INDIVIDUAL TREE / TREE GROUP /  
WOODLAND / HEDGEROW

 ROOT PROTECTION AREA

 EXTENT OF TREE GROUP TO BE REMOVED AS PART OF WORKS

 TREE TO BE REMOVED AS PART  
OF WORKS

PROTECTIVE BARRIER IN ACCORDANCE  
WITH FIGURE 2 OF BS 5837:2012.



PROPOSED SCHEME

 PRECAUTIONARY AREA

|      |          |             |    |       |     |
|------|----------|-------------|----|-------|-----|
| P01  | 10.02.20 | Original    | BC | TD    | TD  |
| Rev. | Date     | Description | By | Chk'd | App |

|                |                            |             |           |
|----------------|----------------------------|-------------|-----------|
| Drawing Status | <b>FIT FOR INFORMATION</b> | Suitability | <b>S2</b> |
|----------------|----------------------------|-------------|-----------|

  
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## ESFA Schools Construction Framework

Orchard Hill  
Hillingdon

## Tree Protection Plan

|                     |                  |                    |                    |                    |
|---------------------|------------------|--------------------|--------------------|--------------------|
| Scale<br>1:500      | Designed<br>-    | Drawn<br>BC        | Checked<br>TD      | Authorised<br>TD   |
| Original Size<br>A1 | Date<br>--/--/-- | Date<br>10/02/2020 | Date<br>10/02/2020 | Date<br>10/02/2020 |

ES0637-ATK-XX-XX-DR-I -7000

P0

The trees were numbered sequentially from T1 for individual trees, G1 for the tree groups and HR for trees recorded for the proposed haul road. The tree survey schedule in Appendix B covers the recorded trees and details preliminary management recommendations that are separate from the proposals and required if the proposals do not proceed.

## 2. Pre-commencement site meetings & supervision

### 2.1. General

A pre-commencement site meeting shall take place prior to construction of the scheme. The meeting shall include an arboriculturist and representatives from the site team and designers.

The purpose of the meeting is to raise awareness with the relevant parties of the trees on site and to confirm the individual responsibilities regarding trees. It will also confirm the requirements for tree related information to be included within induction material and daily briefings to members of staff working or visiting the site.

It shall also confirm the following:

- The location of tree protective barriers.
- Tree works to facilitate the scheme.
- Site specific mitigation measures.
- Where/when arboricultural supervision will be required.

### 2.2. Contact details

This section shall be updated with relevant contact details once the different roles are confirmed. Those requiring inclusion should include; site/construction manager, designer and arboriculturist.

### 2.3. Site supervision

An arboriculturist shall undertake a minimum of four supervisory visits to the site.

These shall follow the sequence set out in table 1 below:

**Table 1 – Programme of site supervision**

| Programme                          | Arboriculturist or delegate | Supervision                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pre-commencement site meeting      | Arboriculturist.            | a) Confirm location and specification of tree protective barriers;<br>b) Confirm tree works to be undertaken;<br>c) Confirm requirements for tree protection information to be included in induction details for the site;<br>d) Confirm requirements for reporting any tree related incidents;<br>e) Confirm ongoing arboricultural monitoring and contact details. |
| Setting out of protective barriers | Arboriculturist.            | a) Review location and specification of tree protective barriers;<br>b) Confirm any additional tree protection measure requirements;<br>c) Submit site monitoring pro forma to Client / Project Manager.                                                                                                                                                             |
| During operation                   | Arboriculturist.            | a) Review location and specification of tree protective barriers;<br>b) Assess condition of retained trees, specifically for any construction related damage;                                                                                                                                                                                                        |

| Programme         | Arboriculturist or delegate | Supervision                                                                                                                                                                                                                                        |
|-------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |                             | c) Confirm or supervise any additional tree protection or mitigation measures;<br>d) Submit site monitoring pro forma to Client / Project Manager.                                                                                                 |
| Post-construction | Arboriculturist.            | a) Inspect all retained trees to make sure they have not been damaged during the construction operations;<br>b) To instruct any remedial works that may be required should a tree defect be identified as a result of the construction operations. |

On completion of each site visit the pro forma in Appendix C of this report shall be completed by an arboriculturist and submitted to the Client/Project Manager. These can be supplied to the Local Planning Authority if required.

Where an arboriculturist is not able to attend the ongoing monitoring visits, these visits are to be undertaken by a suitably briefed and experienced arboriculturist or suitable delegate.

Where emergency matters arise regarding trees, e.g. unexpected access required within construction exclusion zones or damage to retained trees, then an arboriculturist is to co-ordinate a visit to the site in person or delegate his powers to a suitably qualified person.

Any variations or incidents related to trees shall be reported in writing to the Local Authority Tree Officer. Details of the variations or incidents shall incorporate photographic evidence and site notes as appropriate. Suitable remedial measures, including potentially the provision of new planting where deemed appropriate shall be confirmed with the Local Authority Tree Officer in writing.

## 3. Construction exclusion zone (CEZ) & protective barriers

### 3.1. CEZ definition

The CEZs can be defined as all the soft surfaces within the Root Protection Areas (RPAs) of retained trees outside of the works areas and the areas behind the tree protection fencing or site hoarding.

Site operations not permitted in the CEZs without consultation with an arboriculturist include storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, and actions likely to cause localised water-logging. No mechanical digging, scraping or excavation shall be permitted in the CEZ, nor earthworks or changes in the finished ground levels other than those agreed by an arboriculturist.

### 3.2. Root Protection Area

The RPA, as defined in the British Standard, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system."

It is represented as a circle around the tree, with the percentage of encroachment into this circular area providing more informed judgement on the ability to retain a tree both in terms of structural integrity and ongoing vitality of the tree. This layout does not consider existing site conditions that could affect the morphology of the tree roots, and '*modifications to the shape of the RPA*' (para 4.6.2; BS5837:2012) can be undertaken through arboricultural assessment.

For this scheme the presence of existing hard surfacing, existing underground services and earth bunds will have acted as a partial root barrier to growth towards the proposals. This is especially the case for trees T1, T2, T3, T12, T13 & T14, and those to the east of the proposed haul road.

This is due to the built-up ground providing less favourable conditions to root growth, meaning their spread would likely be inhibited, or they could have been severed as part of underground services installations.

### 3.3. Tree protection plan (TPP)

The TPP is drawing number:

- FS0637-ATK-XX-XX-DR-L-7000.

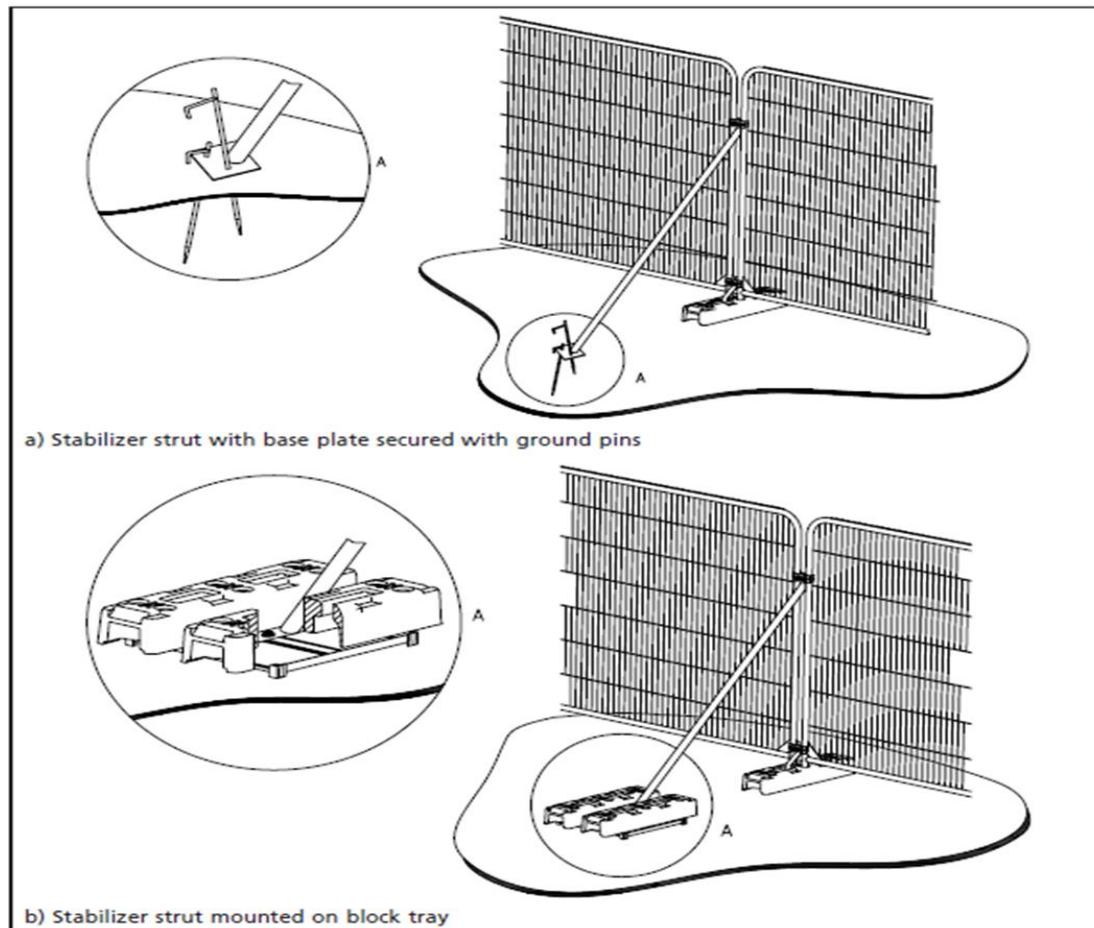
The TPP is to be pinned up on site in a highly visible area and in the site welfare facilities if appropriate, so that all staff involved in the works have a point of reference for tree protection issues.

### 3.4. Tree protective barriers

The locations of temporary protective fencing have been illustrated on the TPP.

Where site hoarding fencing is in situ, this is permitted to form part of the tree protective barriers where deemed appropriate by an arboriculturist.

The protective barriers are to comprise 2m tall welded mesh panels on rubber or concrete feet. The panels are to be joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence. The distance between the fence couplers is to be at least 1m and is to be uniform throughout the fence; the panels are to be supported by inner side stabiliser struts attached to a base plate secured on a block tray. See Figure 3 below.



**Figure 3:** tree protection fencing.

The protected areas shall be seen as sacrosanct and once installed shall not be moved or altered without recommendation by an arboriculturist and, where necessary, approval from the local planning authority. The fencing shall also have signs attached so all are aware of the reason and importance of the fencing.

### 3.5. Ground protection matting

At present no areas for ground protection matting have been identified by the arboriculturist. However, if these are specified in the course of the works to protect tree roots and to minimise ground compaction within RPAs, then an example of a proprietary matting product is Ground-Guards (<http://www.ground-guards.co.uk/solutions/tree-root-protection/>).

A double layer of Ground-Guards panels with a 150mm layer of wood chips sandwiched in-between will create a suitably cushioned base to facilitate access within RPAs where absolutely necessary

### 3.6. Compound areas

The locations of site accommodation, temporary buildings and areas used for storage of materials are to be located outside of the CEZ' of retained trees.

### 3.7. Haul road

The haul road location is shown on the TPP. The presence of existing earth mounds in between the groups and the haul road mean no protective barriers have been specified along the route. A section of hedgerow H2 will need to be removed to facilitate access into the site.

## 4. Specific mitigation measures

### 4.1. Tree T012

All excavation works adjacent to tree T012 are to be supervised by an arboriculturist. The works are within the RPA of the tree. But given the existing hard-surfaces the potential for significant roots in this location is reduced, but not negligible. As such the excavation works for the all-weather pitch shall accord with the following measures:

- a. The extents of the RPA that falls within the all-weather sports pitch is to be clearly marked out on site and agreed with the arboriculturist.
- b. The existing sub-base material to be used, where possible, within the foundations of the all-weather pitch to limit the excavations in this area. If the sub-base is not reusable a cellular confinement system is to be used where possible.
- c. The removal of the existing hard surfacing is to be undertaken using a combination of hand tools. A compressed air pick and air-spade rig can be used to loosen the existing surfacing. No tree roots are to be severed without confirmation from the arboriculturist.
- d. Once excavated if tree roots are located these are to be moved if sufficiently pliable or pruned on the advice of the arboriculturist.
- e. If significant roots are encountered, then the arboriculturist is to notify the Local Planning Authority Tree Officer and confirm the provision of any tree works or further mitigation/compensation measures.

### 4.2. Hand excavations within RPAs for service trench

Any trenches required for services are to be positioned outside of the RPAs of trees. If in some locations this is not possible, due to existing or proposed site restrictions, then any excavations that fall within the RPAs of trees are to be undertaken using hand tools and under the supervision of an arboriculturist. Hand excavations within the RPAs of trees shall be specified as a last resort and following a review of the works in the location to make certain there are no other design solutions to avoid the RPA.

If hand excavations are specified, then they shall accord with the following:

- a. The area to receive excavations is to be clearly marked out on site and agreed with the arboriculturist.
- b. Hand tools are to be used, with all spoil to be positioned outside of the RPA of the tree.
- c. The use of an air-spade rig to loosen the sub-base material can be instructed by supervising arboriculturist if required to loosen clay based material or similar.
- d. Once excavated if tree roots are located these are to be moved if sufficiently pliable or pruned on the advice of the arboriculturist.
- e. If significant roots are encountered, then the arboriculturist is to notify the Local Planning Authority Tree Officer and confirm the provision of any tree works or further mitigation/compensation measures.

### 4.3. New boundary and internal fencing

Where possible the retention of existing boundary fencing has been adopted as part of the design. However, in some places this has not been possible and new fencing needs installing to meet higher security standards. The locations of the fencing are illustrated on drawing FS0637-ATK-Z2-XX-DR-L-911004.

Where possible all the fence posts are to be positioned outside of the RPAs of retained trees. If posts need to be installed within the RPAs of trees, then they shall accord with the following:

- a. The specific locations to receive excavations are to be clearly marked out on site and agreed with the arboriculturist.
- b. The requirements for any crown lifting or reductions to facilitate the installation of the fencing is also to be agreed with the arboriculturist.

- c. Hand tools are to be used, with all spoil to be positioned outside of the RPA of the tree.
- d. The use of an air-spade rig to loosen the sub-base material can be instructed by supervising arboriculturist if required to loosen clay based material or similar.
- e. Once excavated if tree roots are located these are only to be pruned on the advice of the arboriculturist.
- f. The holes are to be lined with an impermeable geotextile to avoid concrete leaching within the RPA.

#### 4.4. Landscaping operations

All landscaping operations are to avoid topsoil stripping within RPAs using mini-diggers or similar plant. The removal of any turf is to be undertaken using a turf cutter or herbicide application in accordance with the manufacturer's guidelines. Any agitation of the soil surface within the RPAs of trees for the wildflower seeding is to be done using a spring tine rake or similar appropriate handheld tools.

#### 4.5. Root pruning

Where tree roots have to, as last resort, be severed the pruning points shall be agreed with the supervision arboriculturist and pruning undertaken using a sharp pair of secateurs or a hand saw, or if pliable moved out of the construction profile and re-covered within topsoil.

On completion of the pruning operations the remaining grassed or soft surfaces surrounding the tree shall have soil amendments applied that include phosphites to maximise the trees resilience to fungal colonisation.

## 5. Tree works

### 5.1. General

All tree works are to be undertaken in line with current recommendations in accordance with *BS3998:2010 Tree Work – Recommendations* and comply with the current Arboriculture and Forestry Advisory Group (AFAG) or applicable Forestry Industry Safety Accord (FISA) advice published by the Health and Safety Executive (HSE) or FISA.

Tree works are to be planned to ensure protection of people, property and wildlife. If the works are to be undertaken during the bird nesting season then advice is to be sought from an Ecologist prior to undertaking tree works.

The trees to be removed or worked upon for facilitation pruning shall be clearly marked by the supervising arboriculturist prior to any tree works commencing on site. These works are to be agreed with the supervising arboriculturist.

The tree works contractor is to be made aware of the site access limitations. The contractor will have to submit a risk assessment and method statement for review by the Principal Contractor or Supervisor prior to commencing works on site.

### 5.2. Tree works schedule

All tree works are detailed in the table below. The requirements for any further facilitation pruning operations are to be confirmed prior to construction and covered within the pre-commencement site meetings for each phase of the works.

| Tree ref | Tree Species     | Tree Works                                                                  |
|----------|------------------|-----------------------------------------------------------------------------|
| T1       | Holly            | Cut back west crown if required for construction access.                    |
| T2       | Yew              | Cut back west crown if required for construction access.                    |
| T3       | Ash              | Cut back north and west crown if required for construction access.          |
| T4       | Cotoneaster      | Cut back north crown if required for construction access.                   |
| T6       | Tree of Heaven   | Tree to be felled and stump removed.                                        |
| T7       | Alder            | No tree works currently identified.                                         |
| T8       | Wild Cherry      | Cut back east crown to facilitate construction of all-weather sports pitch. |
| T9       | Leyland Cypress  | Crown lifted if required to facilitate installation of new fence.           |
| T10      | Weeping Willow   | Cut back east crown to facilitate construction of all-weather sports pitch. |
| T11      | Tree of Heaven   | Crown lifted if required to facilitate installation of new fence.           |
| T12      | Ash              | Crown lifted and reduce crown extents by approximately 2-3m towards scheme. |
| T13      | Ash              | No tree works currently identified.                                         |
| T14      | Ash              | No tree works currently identified.                                         |
| T15      | Monterey cypress | Tree to be felled and stump removed.                                        |
| T16      | Monterey cypress | No tree works currently identified.                                         |
| G1       | Various          | No tree works currently identified.                                         |
| G2-T1    | Leyland Cypress  | Tree to be felled and stump removed.                                        |
| G2-T2    | Cherry Laurel    | Tree to be felled and stump removed.                                        |

| Tree ref | Tree Species                                      | Tree Works                                                                                |
|----------|---------------------------------------------------|-------------------------------------------------------------------------------------------|
| G2-T3    | Ash                                               | Crown lifted if required to facilitate installation of new fence.                         |
| G2-T4    | Leyland Cypress                                   | Cut back north crown if required for construction access.                                 |
| G3-T1    | Leyland Cypress                                   | Tree to be felled and stump removed.                                                      |
| G3-T2    | Hornbeam                                          | Cut back north crown if required for construction access.                                 |
| G3-T3    | Leyland Cypress                                   | No tree works currently identified.                                                       |
| G3-T4    | Ash                                               | Cut back west crown if required for construction access.                                  |
| G3-T5    | Cherry Laurel                                     | Cut back west crown if required for construction access.                                  |
| G3-T6    | Ash                                               | Cut back north crown if required for construction access, or coppice.                     |
| G4       | Laurel                                            | Group to be retained if possible, through coppice.                                        |
| G5       | Hornbeam                                          | Cut back crowns as required to facilitate construction access.                            |
| H1       | Hawthorn, holly, sycamore, elder, plum and Oak    | No tree works currently identified.                                                       |
| H2       | Blackthorn, Hawthorn                              | Section of hedgerow to be removed as per the TPP to facilitate the haul road entry point. |
| HR-G1    | Ash, Robinia, oak                                 | No tree works currently identified.                                                       |
| HR-T2    | Hawthorn                                          | No tree works currently identified.                                                       |
| HR-G3    | Blackthorn                                        | No tree works currently identified.                                                       |
| HR-G4    | Robinia, Ash, Hawthorn, Oak                       | No tree works currently identified.                                                       |
| HR-T5    | Hawthorn                                          | No tree works currently identified.                                                       |
| HR-G6    | Oak, ash, yew, hawthorn, blackthorn, holly, elder | No tree works currently identified.                                                       |
| HR-T7    | Horse Chestnut                                    | No tree works currently identified.                                                       |
| HR-G8    | Robinia, oak, ash, elder                          | No tree works currently identified.                                                       |
| HR-T9    | Ash                                               | No tree works currently identified.                                                       |

# Appendices

# Appendix A. Key & British Standard 5837:2012 Survey Table

## A.1. Survey key

**Tree No:** Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

**Species:** This is the common name given to the tree. The botanical name is sometimes given.

**Height (Ht.):** tree height from the base of the tree to its full stem height, measured in metres (m). Measurements are taken to the nearest half metre.

**Stem diameter (mm):** measured in accordance with Figure A1 below. Measurements are rounded to the nearest 10mm.

**Branch spread (m):** measurement of crown spread to the four cardinal points; if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

**1st significant branch and direction of growth (m):** measurement of the height of the first significant branch above ground level, given in metres and direction of growth e. g. 2. 4-N

**Canopy height (m):** height of the canopy above ground level. Measurements are taken to the nearest half metre.

**Life stage:** The following abbreviations are used:

Y = Young trees <1/5 life expectancy.

SM = Semi-Mature trees 1/5 – 2/5 life expectancy.

EM = Early Mature trees 2/5 – 3/5 life expectancy.

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

**Vitality: Good, fair, poor or dead**

Good – a tree with little or no obvious physiological defects; leaf density and colour is typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown.

Fair – a tree with moderate physiological defects; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient, there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown.

Poor – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown.

Dead – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.

**General observations, particularly of structural and/or physiological condition:** e. g. observations of any decay and physical defect.

**Preliminary management recommendations:** any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

**Estimated remaining contribution, in years:**

<10

10+

20+

40+

**Category grading:** As per BS 5837:2012 chart in accordance with Figure A2 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as mid blue (RGB code 000-000-255)

C – Illustrated as grey (RGB code 091-091-091)

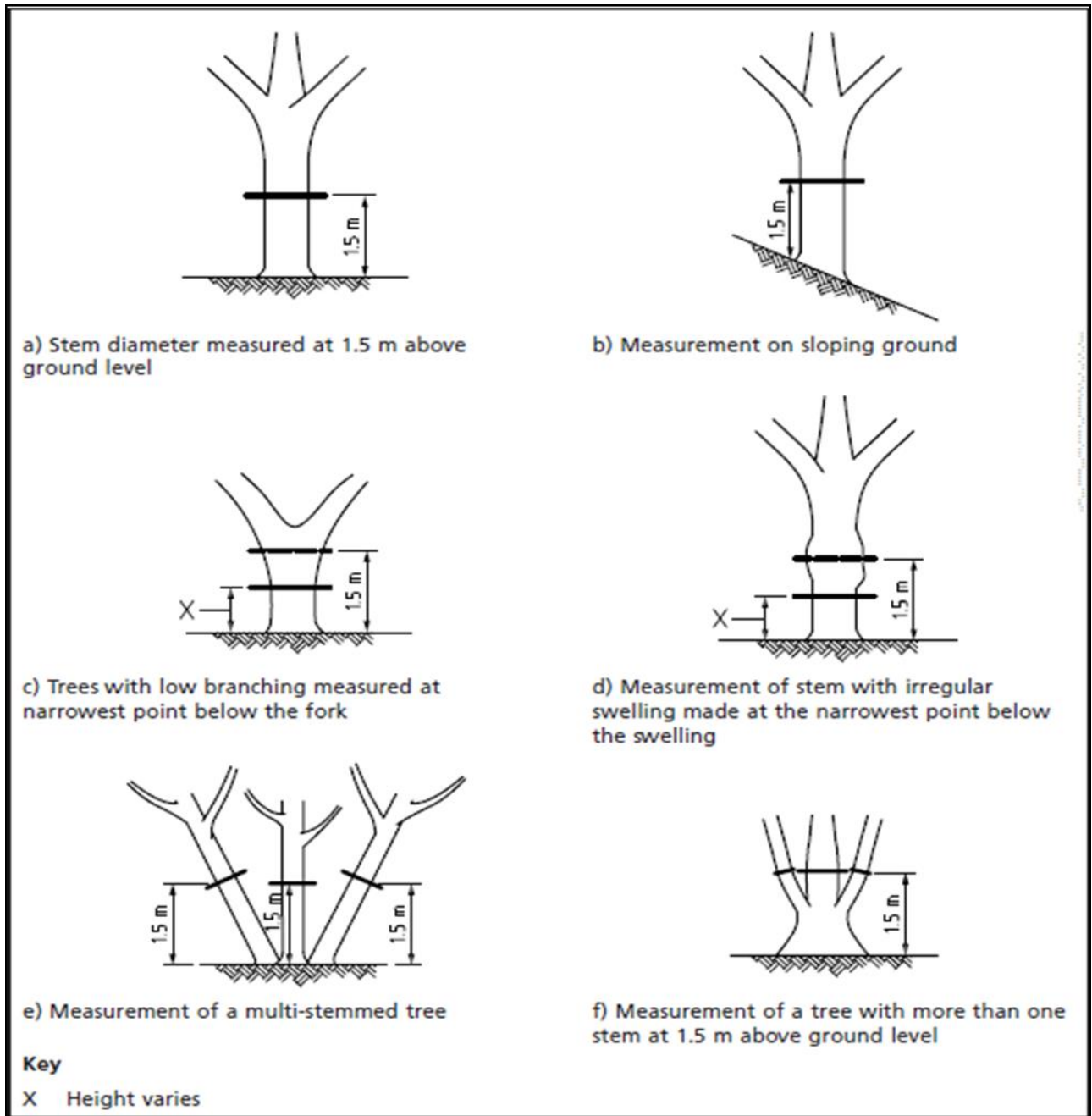
U – Illustrated as dark red (RGB code 127-000-000)

**Root Protection Area (m<sup>2</sup>):** plotted around each of the category A, B and C trees on relevant drawings, illustrating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability. The protection of the roots and soil structure is treated as of paramount importance.

(Note: Red hash tag '#' will denote that a measurement is estimated)

## A.2. Measuring table

Measurement of tree stems dependant on tree form.



## A.3. BS 5837:2012 cascade chart

### Cascade chart for tree quality assessment from BS 5837:2012

| Table 1 Cascade chart for tree quality assessment                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        |                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category and definition                                                                                                                                            |  | Criteria (including subcategories where appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                        | Identification on plan                                                                                                                               |
| Trees unsuitable for retention (see Note)                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        |                                                                                                                                                      |
| Category U<br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years |  | <ul style="list-style-type: none"><li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li><li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li></ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p> |                                                                                                                                        | See Table 2                                                                                                                                          |
| 3 Mainly cultural values, including conservation                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        |                                                                                                                                                      |
| Trees to be considered for retention                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                        |                                                                                                                                                      |
| Category A<br>Trees of high quality with an estimated remaining life expectancy of at least 40 years                                                               |  | 1 Mainly arboricultural qualities<br>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2 Mainly landscape qualities<br>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features | See Table 2<br>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture) |
| Category B<br>Trees of moderate quality with an estimated remaining life expectancy of at least 20 years                                                           |  | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                        | See Table 2<br>Trees with material conservation or other cultural value                                                                              |
| Category C<br>Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm              |  | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                        | See Table 2<br>Trees with no material conservation or other cultural value                                                                           |

## Appendix B. Tree survey schedule

| Tree no. | Species               | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                                                         | Preliminary management recommendations   | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|-----------------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                       |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                                                                                           |                                          |                                    |                  |                             |
| T1       | Holly                 | 8          | 180                | 1.5               | 1.5 | 1.5 | 1.5 | N/A                                     | 0             | EM         | Fair     | Offsite boundary tree.                                                                                                                                                                                                                                                                                    | Prune crown away from pedestrian access. | 10+                                | C1               | 2.2                         |
| T2       | Yew                   | 4          | 200;200            | 2                 | 2   | 2   | 2   | N/A                                     | 0             | EM         | Fair     | Growing approximately 300mm higher than level of pathway. No obvious direct damage recorded from surface root activity. Crown formally topped at 2m.                                                                                                                                                      | Prune crown away from pedestrian access. | 10+                                | C2               | 4.2                         |
| T3       | Ash                   | 10         | 280                | 5                 | 5   | 5   | 5   | 3-N                                     | 2.5           | SM         | Good     | Concrete foundations for brick wall and slabbed pathway to north and west. Potential root barrier to growth. Dense ivy on main stem and in crown. Existing services within pathway. Low crown height, 1.8m to west. No direct damage recorded from surface root activity. Multiple stems from 2m, topped. | No works presently required              | 10+                                | C2               | 3.4                         |
| T4       | Cotoneaster           | 6          | 150                | 3                 | 3   | 3   | 3   | N/A                                     | 0             | EM         | Good     | Growing along boundary fenceline. Root zone restricted by existing hard standing.                                                                                                                                                                                                                         | No works presently required              | 10+                                | C2               | 1.8                         |
| T5       | tree number not used. |            |                    |                   |     |     |     |                                         |               |            |          |                                                                                                                                                                                                                                                                                                           |                                          |                                    |                  |                             |

| Tree no. | Species         | Height (m) | Stem diameter (mm) | Branch spread (m) |     |   |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                 | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|-----------------|------------|--------------------|-------------------|-----|---|-----|-----------------------------------------|---------------|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                 |            |                    | N                 | E   | S | W   |                                         |               |            |          |                                                                                                                                                                                                                                                                   |                                        |                                    |                  |                             |
| T6       | Tree of Heaven  | 16         | 870                | 8                 | 8   | 8 | 8   | 3-E                                     | 2.5           | M          | Good     | Growing in grassed area. Slabbed pathways to east and west. Slabs lifted in places due to surface root activity. Crown break at 3m into multiple stems. Unions appear sound. Occasional wounds on main stem, occlusion in places. Desiccated white rot present.   | No works presently required            | 20+                                | B2               | 10.4                        |
| T7       | Alder           | 12         | 420                | 3                 | 3   | 3 | 3   | 3-N                                     | 1.5           | SM         | Good     | Co-dominant stems from approximately 3m, union appears sound. Existing concrete ramped access 2m south, potential root barrier to growth. Slabbed pathway approximately 1.8m north, potential direct damage recorded from surface root activity. Displaced slabs. | No works presently required            | 20+                                | B2               | 5.0                         |
| T8       | Wild Cherry     | 14         | 500                | 8                 | 8.5 | 3 | 4   | 3-E                                     | 3             | M          | Good     | Crown break at approximately 3m, three no.stems. crown suppression to south. Light ivy encroachment. Occasional small diameter dead wood in middle crown.                                                                                                         | No works presently required            | 20+                                | B2               | 6.0                         |
| T9       | Leyland Cypress | 14         | 550                | 2.5               | 2.5 | 4 | 3.5 | 3-E                                     | 2             | M          | Good     | Light ivy encroachment on main stem. Crown previously lifted to west.                                                                                                                                                                                             | No works presently required            | 20+                                | B2               | 6.6                         |

| Tree no. | Species        | Height (m) | Stem diameter (mm) | Branch spread (m) |   |   |   | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                  | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|----------------|------------|--------------------|-------------------|---|---|---|-----------------------------------------|---------------|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                |            |                    | N                 | E | S | W |                                         |               |            |          |                                                                                                                                                                                                                                                                    |                                        |                                    |                  |                             |
| T10      | Weeping Willow | 15         | 550                | 6                 | 6 | 3 | 5 | 2-S                                     | 1.8           | EM         | Good     | Crown previously reduced in height and lateral spread. Abrupt angles on branches at pruning wounds. Existing pavement and concrete kerb approximately 1m south. Direct damage recorded to surface from root activity.                                              | No works presently required            | 20+                                | B2               | 6.6                         |
| T11      | Tree of Heaven | 16         | 550                | 6                 | 6 | 7 | 7 | 2.5-SW                                  | 4             | M          | Good     | Grassed area around base. Existing hard surface pavement and concrete kerb approximately 2m south. Potential direct damage to surface from root activity. Crown break at 2.5m into multiple stems. Unions appear sound. Large diameter surface root to north east. | No works presently required            | 20+                                | B2               | 6.6                         |

| Tree no. | Species          | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                                                                                                                                                                | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|------------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                  |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                                                                                                                                                                                                  |                                        |                                    |                  |                             |
| T12      | Ash              | 15         | 410                | 8                 | 5   | 5   | 5   | 4-NW                                    | 3             | M          | Good     | Third party tree. 2.3m from existing hard surfaced car park. Bound by concrete kerb, approximately 200mm below level of tree. Metal palisade fence between tree and site. Cars in position, cannot determine presence of any direct damage to adjacent surfacing. Dense ivy encroachment on main stem and into crown. Crown break at approximately 4m into multiple stems. Crown previously lifted over car park | Sever ivy.                             | 20+                                | B2               | 4.9                         |
| T13      | Ash              | 9          | 125                | 3                 | 3   | 3   | 3   | N/A                                     | 4             | SM         | Fair     | Self sown tree.                                                                                                                                                                                                                                                                                                                                                                                                  | No works presently required            | 10+                                | C2               | 1.5                         |
| T14      | Ash              | 8          | 125                | 1                 | 2   | 2   | 1   | N/A                                     | 4             | SM         | Fair     | Self sown tree.                                                                                                                                                                                                                                                                                                                                                                                                  | No works presently required            | 10+                                | C2               | 1.5                         |
| T15      | Monterey cypress | 9          | 300                | 2.5               | 2.5 | 2.5 | 2.5 | N/A                                     | 3             | SM         | Fair     | Part of unmanaged hedgerow.                                                                                                                                                                                                                                                                                                                                                                                      | No works presently required            | 10+                                | C2               | 3.6                         |
| T16      | Monterey cypress | 9          | 150                | 1.5               | 1.5 | 1.5 | 1.5 | N/A                                     | 3             | SM         | Fair     | Part of unmanaged hedgerow.                                                                                                                                                                                                                                                                                                                                                                                      | No works presently required            | 10+                                | C2               | 1.8                         |

| Tree no. | Species         | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                             | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|-----------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                 |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                               |                                        |                                    |                  |                             |
| G1       | Various         | 4          | 150                | 2                 | 2   | 2   | 2   | N/A                                     | 0             | SM         | Fair     | Third party boundary shrubs.                                                                                                                                                                                                                  | No works presently required            | 10+                                | C2               | 1.8                         |
| G2-T1    | Leyland Cypress | 7          | 200                | 3                 | 3   | 3   | 3   | N/A                                     | 2             | Y-SM       | Good     | Part of mixed boundary group. Crown lifted to north.                                                                                                                                                                                          | No works presently required            | 10+                                | C2               | 2.4                         |
| G2-T2    | Cherry Laurel   | 5          | 150;150;100        | 3.5               | 3.5 | 3.5 | 3.5 | N.A                                     | 0             | SM         | Good     | Part of mixed boundary group. Potential lapsed hedgerow planting. Multi stem from ground level. Suggesting past felling to group level and regeneration.                                                                                      | No works presently required            | 10+                                | C2               | 3.0                         |
| G2-T3    | Ash             | 6          | 100;100;100;100    | 4                 | 4   | 4   | 4   | N/A                                     | 1.5           | Y to SM    | Good     | Part of mixed boundary group. Multiple stems from ground level. Suggesting past felling and subsequent regeneration. Drawn stems. Mutual suppressed crowns.                                                                                   | No works presently required            | 10+                                | C2               | 3.0                         |
| G2-T4    | Leyland Cypress | 5          | 150;150            | 2.5               | 2.5 | 2.5 | 2.5 | N/A                                     | 1.5           | Y          | Fair     | Part of mixed boundary group. Soil mounded at base to north.                                                                                                                                                                                  | Remove spoil from base of tree.        | 10+                                | C2               | 2.4                         |
| G3-T1    | Leyland Cypress | 6          | 380                | 3                 | 3   | 1.5 | 3   | 2.5-N                                   | 2.5           | SM         | Good     | Part of mixed boundary group. Approximately 1.2m from existing hard surfaced car park area. No obvious direct damage recorded from surface root activity visible. Concrete kerb potential root barrier. Multiple stems from approximately 1m. | No works presently required            | 10+                                | C2               | 4.6                         |

| Tree no. | Species         | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                       | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|-----------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                 |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                                                         |                                        |                                    |                  |                             |
| G3-T2    | Hornbeam        | 8          | 200                | 3                 | 3   | 3   | 3   | N/A                                     | 0             | SM         | Good     | Lapsed hornbeam hedgerow. Occasional ash. Average spacing 600mm. Existing hard surface carpark to north and south extents. Concrete pad foundation for cycle store. Slabbed walkway. Various root barriers to growth. Screen function. Crowns cut back laterally to 2m. | No works presently required            | 10+                                | C2               | 2.4                         |
| G3-T3    | Leyland Cypress | 5          | 150;100            | 2.5               | 2.5 | 2.5 | 2.5 | N/A                                     | 0             | Y          | Fair     | Part of mixed boundary group.                                                                                                                                                                                                                                           | No works presently required            | 10+                                | C2               | 2.4                         |
| G3-T4    | Ash             | 5          | 80;80;80           | 2.5               | 2.5 | 2.5 | 2.5 | N/A                                     | 0             | Y          | Fair     | Part of mixed boundary group. Multi stem from ground level suggesting past felling to ground level and regeneration.                                                                                                                                                    | No works presently required            | 10+                                | C2               | 1.8                         |
| G3-T5    | Cherry Laurel   | 5          | 200                | 2.5               | 2.5 | 2.5 | 2.5 | N/A                                     | 0             | Y-SM       | Fair     | Part of mixed boundary group.                                                                                                                                                                                                                                           | No works presently required            | 10+                                | C2               | 2.4                         |
| G3-T6    | Ash             | 5          | 250                | 3.5               | 3.5 | 3.5 | 3.5 | 1-S                                     | 0.5           | Y          | Good     | Part of mixed boundary group. Multi stems throughout group. Potential lapsed hedgerow. Localised excavations present.                                                                                                                                                   | No works presently required            | 10+                                | C2               | 3.0                         |
| G4       | Laurel          | 7          | 200                | 3                 | 3   | 3   | 3   | N/A                                     | 0             | SM         | Good     | Continuation. Laurel lapsed hedgerow. Previously cut back in places. Grassed area to east. Hard surfaces to west.                                                                                                                                                       | No works presently required            | 10+                                | C2               | 2.4                         |

| Tree no. | Species                                        | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality     | General observations<br>Structural and/or physiological condition                                                                                    | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|------------------------------------------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                                                |            |                    | N                 | E   | S   | W   |                                         |               |            |              |                                                                                                                                                      |                                        |                                    |                  |                             |
| G5       | Hornbeam                                       | 8          | 100-200            | 3                 | 3   | 3   | 3   | N/A                                     | 0             | SM-EM      | Good         | Unmanaged hedgerow.                                                                                                                                  | No works presently required            | 10+                                | C2               | 3.0                         |
| H1       | Hawthorn, holly, sycamore, elder, plum and Oak | 7          | 200                | 2                 | 2   | 2   | 2   | N/A                                     | 0             | SM-EM      | Good         | Dense ivy encroachment on some stems. Unmanaged                                                                                                      | No works presently required            | 10+                                | C2               | 2.4                         |
| H2       | Blackthorn, Hawthorn                           | 5.5        | 250                | 3.5               | 3.5 | 3.5 | 3.5 | N/A                                     | 0             | M          | Fair         | Lapsed boundary hedgerow. Dense pockets of blackthorn. Hawthorn dominates. Dense ivy encroachment on stems and into crowns. Partial screen function. | No works presently required            | 10+                                | C2               | 3.0                         |
| HR-G1    | Ash, Robinia, oak                              | 10         | 400                | 5                 | 5   | 5   | 5   | N/A                                     | 0             | SM-EM      | Fair to good | Dense ivy encroachment on some stems. Drawn forms. Self sown trees in places. Occasional small to moderate diameter dead wood. Leans on some trees.  | No works presently required            | 10+                                | C2               | 4.8                         |
| HR-T2    | Hawthorn                                       | 3.5        | 300                | 3                 | 3   | 3   | 3   | N/A                                     | 0.5           | EM         | Fair         | Multi stems from 100mm. Unions obscured by dense ivy. Dense ivy encroachment on main stem and into crown.                                            | No works presently required            | 10+                                | C2               | 3.6                         |
| HR-G3    | Blackthorn                                     | 3.5        | 150                | 1.5               | 1.5 | 1.5 | 1.5 | N/A                                     | 0             | Y to SM    | Good         | Dense blackthorn scrub dominates. Occasional ash sapling. Screen function. Successional growth prolific to north.                                    | No works presently required            | 10+                                | C2               | 1.8                         |

| Tree no. | Species                                           | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                          | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|---------------------------------------------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                                                   |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                            |                                        |                                    |                  |                             |
| HR-G4    | Robinia, Ash, Hawthorn, Oak                       | 16         | 350                | 4.5               | 4.5 | 4.5 | 4.5 | N/A                                     | 1             | SM         | Good     | Planted informal group. Robinia, oak, ash dominate. Occasional hawthorn. Earth bund between trees and open space to north. Mutually suppressed crowns. Ivy encroachment on some stems. Some collapsed stems. No active management visible. | No works presently required            | 20+                                | B2               | 4.2                         |
| HR-T5    | Hawthorn                                          | 4          | 250                | 4                 | 4   | 4   | 4   | N/A                                     | 0             | EM         | Fair     | Dense bramble around base hindering access to basal area. Balanced crown. Ivy encroachment in places.                                                                                                                                      | No works presently required            | 10+                                | C2               | 3.0                         |
| HR-G6    | Oak, ash, yew, hawthorn, blackthorn, holly, elder | 6          | 250                | 3                 | 3   | 3   | 3   | N/A                                     | 0             | Y to M     | Fair     | Lapsed hedgerow with intermittent planted young to semi-mature trees. Mature hawthorn remnants of old field boundary hedgerow. Dense ivy encroachment on some stems. Collapsed stems/branches in places. Dense pockets of scrub in places. | Use crown extents to define CEZ        | 10+                                | C2               | 3.0                         |
| HR-T7    | Horse Chestnut                                    | 5          | 220;260            | 5                 | 5   | 5   | 5   | 2-W                                     | 1.5           | SM         | Good     | Leaf miner visible on remaining foliage. Co-dominant stems from approximately 200mm. Slight included bark. Earth bund to west.                                                                                                             | Use crown to define CEZ                | 10+                                | C2               | 3.6                         |

| Tree no. | Species                  | Height (m) | Stem diameter (mm) | Branch spread (m) |     |     |     | 1st major branch height (m) / Direction | Canopy height | Life stage | Vitality | General observations<br>Structural and/or physiological condition                                                                                                                                                                                                                                                                                         | Preliminary management recommendations | Established remaining contribution | Category grading | Root Protection Area radius |
|----------|--------------------------|------------|--------------------|-------------------|-----|-----|-----|-----------------------------------------|---------------|------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------|------------------|-----------------------------|
|          |                          |            |                    | N                 | E   | S   | W   |                                         |               |            |          |                                                                                                                                                                                                                                                                                                                                                           |                                        |                                    |                  |                             |
| HR-G8    | Robinia, oak, ash, elder | 17         | 400                | 5.5               | 5.5 | 5.5 | 5.5 | N/A                                     | 0             | SM to M    | Good     | Planted informal group. Earth bun approximately 1.5m high along west extents. Mutually suppressed crowns. Light ivy encroachment on some stems. Leans and collapse stems in places. Sycamore dominant on south extents. Bramble scrub establishing. More mature trees along boundary feneline. Dense ivy on some stems. Occasional self sown ash sapling. | Use crown extents to define CEZ.       | 20+                                | B2               | 4.8                         |
| HR-T9    | Ash                      |            | 150;100;180        | 4                 | 4   | 4   | 2   | 2-N                                     | 1.5           | SM         | Good     | Existing hard surface access road in root zone to south. Concrete kerb approximately 500mm from base. Unoccluded wounds on stems.                                                                                                                                                                                                                         | No works presently required            | 10+                                | C2               | 3.8                         |

# Appendix C. Tree monitoring Pro-forma

## C.1. Tree monitoring pro-forma

|                             |  |  |  |
|-----------------------------|--|--|--|
| <b>Job number:</b>          |  |  |  |
| <b>Document ref:</b>        |  |  |  |
| <b>Revision:</b>            |  |  |  |
| <b>Purpose description:</b> |  |  |  |
| <b>Originated:</b>          |  |  |  |
| <b>Checked:</b>             |  |  |  |
| <b>Authorised:</b>          |  |  |  |
| <b>Date:</b>                |  |  |  |
| <b>Notice:</b>              |  |  |  |

### Purpose of Monitoring Visit

|   |
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### Date of Visit

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|  |
|--|

### Observations

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|---|

### Recommended Actions

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| □ |
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### Relevant Photographs

| Number | Photograph | Description |
|--------|------------|-------------|
|        |            |             |

## Appendix D. Tree protection plan

Drawing(s) supplied separately

**Atkins Limited**  
Peterborough Business Park  
Lynch Wood  
Peterborough  
PE2 6FZ