RICHMOND UPON THAMES COLLEGE
RESIDENTIAL DEVELOPMENT ZONE

Proposed Residential Development

Construction Environmental Management Plan

CLARION HOUSING GROUP

Prepared on behalf of

Clarion Housing Group

20/5453/CEMP03

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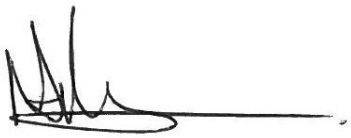
Approved by:	NDR		Date:	28/04/2021

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1 INTRODUCTION

1.1 Background

1.1.1 This Construction Environmental Management Plan (CEMP) has been prepared to inform the demolition and construction processes of the 'Residential Development Zone' of the Richmond Education and Enterprise Campus (REEC) site. The site is located in Twickenham, within the London Borough of Richmond upon Thames.

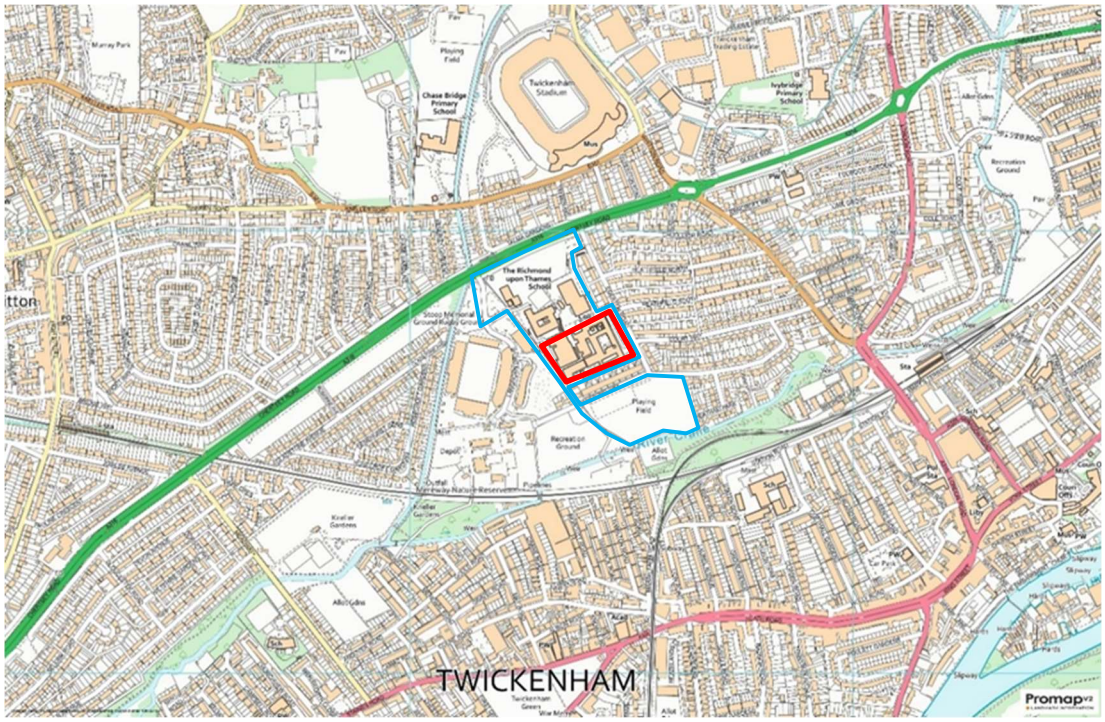


Figure 1.1 Extent of the 'Residential Development Zone' in Relation to the REEC Site

1.1.2 The development site (shown in red in **Figure 1.1**) forms part of the wider REEC development site (shown in blue), bound by A316 Chertsey Road to the north and the Harlequins 'Stoop' Rugby Stadium to the west. The site is bounded by the new College buildings and schools to the north (recently constructed) and residential neighbours to the east and south served from Egerton Road and Craneford Way respectively.

1.1.1 The site comprises the 'Residential Development Zone' of the wider mixed-use redevelopment of the REEC site. In August 2016, Outline planning permission 15/3038/OUT was granted for the demolition of the Richmond upon Thames College (RuTC) to provide a new consolidated College campus in the north and west area of the site, enabling the remainder of the site to be redeveloped to provide a mixed-use scheme including a new Secondary School, Special Educational Needs School, Tech Hub, STEM building and Sports Centre, with the residential development to the south.

1.1.2 An extract of the approved Masterplan layout drawing is shown below (**Figure 1.2**), indicating the approved 'Development Zones'. The Residential Development Zone is shown at the south end of the site to the rear of the College campus, with access gained via the main access off Langhorn Drive, in a shared arrangement with the College and Twickenham Stoop Rugby Stadium.

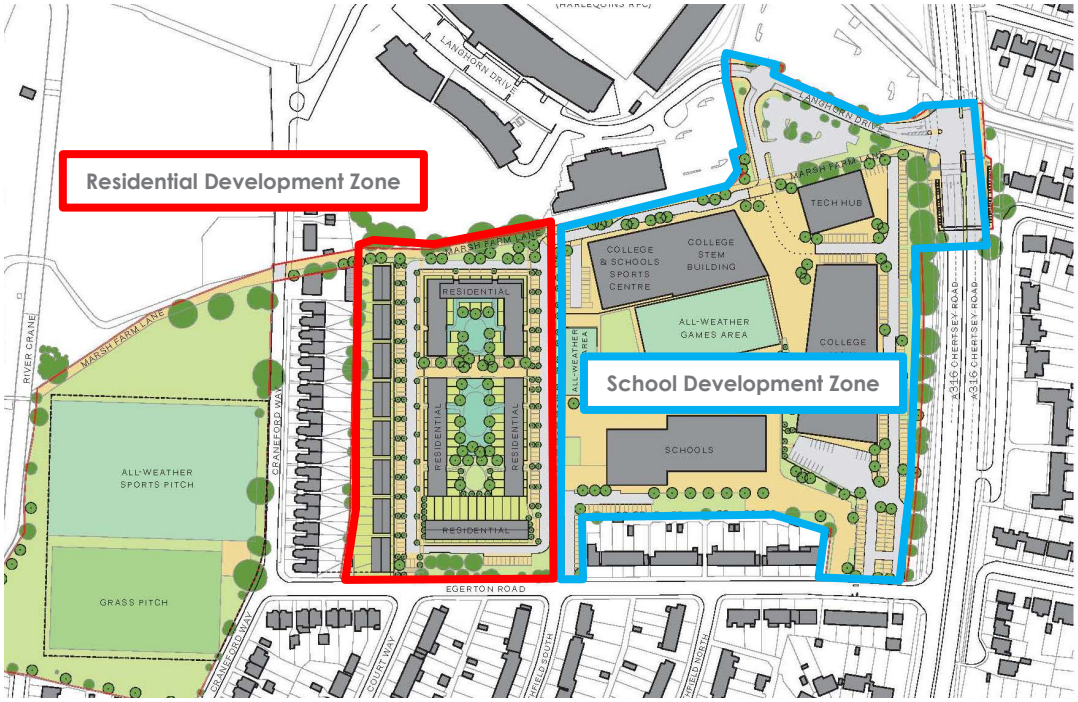


Figure 1.2 RuTC Site Development Zones

1.1.3 This CEMP supports the construction of a scheme of 212 residential dwellings, including 30 houses and 182 flats/apartments. A copy of the proposed Masterplan layout is attached at **Appendix A**.

1.1.4 The proposed construction works would be facilitated by a temporary haulage road along the western side of the REEC site, via Langhorn Drive, that will serve all construction-related traffic. Following construction of the residential development, this route would be constructed as the primary vehicular route to/from the site.

1.1.5 In addition, the use of the existing site access off Egerton Road would be required for a temporary period (approximately 12-months) as a temporary vehicle access for residents of the initial phases of the development, to ensure that residential traffic is kept separate from construction vehicles movements.

1.2 Outline Construction Environmental Management Plan

1.2.1 The Outline planning approval 15/3038/OUT for the REEC development site included an Outline Construction Environmental Management Plan (CEMP), Construction Logistics Plan (CLP), Construction Management Plan (CMP) and an indicative Construction Phasing Plan (CPP).The above documents covered all aspects of the REEC development site as a whole.

1.2.2 The aim of this CEMP is to ensure that the commitments to environmental protection detailed within the overarching Environmental Statement (ES) are adhered to throughout the construction stage. This CEMP ensures that best practice methods are employed by all contractors and sub-contractors.

1.2.3 However, this includes all committed methodologies set out in the Outline CEMP that will still need to be implemented. This CEMP ensures that best practice methods are employed by all contractors and sub-contractors. Therefore, much of the information provided in this CEMP is extracted from the Outline CEMP, prepared by Cascade.

1.2.4 Subsequent to the Outline scheme, CEMP's were also prepared for the Phase 1 and Phase 2 works to the 'School Development Zone', secured through planning applications 15/3038/DD01 and 15/3038/DD19 respectively. The methodologies set out in these documents have also been considered to ensure consistency in construction delivery practices, for example.

1.2.5 The programmed works as part of the construction phase will need to be carefully coordinated with these other phases of development to ensure that safe and efficient operations are maintained in an organised manner.

1.3 Scope of this CEMP

1.3.1 In a similar approach to the Outline CEMP, a full CEMP will be produced by the Principal Contractor appointed for the detailed design and build of each element of the REEC development.

1.3.2 This CEMP has therefore also been prepared as an outline document to support the new planning application, to confirm the principal strategies for the completion of the construction phase of the development and provide high level information on the proposed construction management and logistics.

1.3.3 It is anticipated that once a Contractor has been appointed, any outstanding details would be provided within a full CEMP, likely to be conditioned as part of any planning consent. The approved CEMP would be implemented during demolition and construction works and would be strictly adhered to.

1.3.4 A CEMP provides a considered approach to how the potential impact of construction-related traffic would be minimised and mitigated against. The following key environmental topics are addressed by this CEMP:

- Transport;
- Noise and vibration;
- Air quality;
- Ground conditions;
- Waste;
- Water resources and flood risk;
- Ecology;
- Townscape and visual amenity;
- Cultural heritage; and
- Socio-economics.

1.3.5 This CEMP should be read concurrently with the Environmental Statement (ES), which detail the significant effects on sensitivity receptors which are predicted to arise from the REEC development.

1.3.6 This document complements a number of planning documents including a Transport Assessment (TA), Travel Plan (TP) and Delivery & Servicing Management Plan (DSMP), all of which have been prepared by RGP. These reports should also be read in conjunction with this CEMP.

1.4 Objectives of this CEMP

1.4.1 The CEMP is a live document that will be updated as required throughout the course of the demolition and construction programme. The CEMP will be reviewed and updated by the appointed Principal Contractor, prior to commencement of the site set up and enabling works. In the event that more than contractor is appointed, each will be required to produce a full CEMP. It will then be the responsibility of the contractor(s) to regularly update and implement the final CEMP and ensure that all site personnel are made aware of its contents.

1.4.2 The finalisation of the CEMP will involve the following activities/responsibilities of the Principal Contractor:

(i) Establish site logistics, access and welfare facilitates, including the completion of a Construction Phase Plan;

(ii) Set out site management protocols and health and safety practices;

(iii) Prepare a detailed Method Statement for construction activities;

(iv) Re-assess site activities which may give rise to environmental impacts;

(v) Prepare a detailed Traffic Management/Logistics Plan;

(vi) Prepare a detailed Site Waste Management Plan;

(vii) Confirm responsibilities for actioning and reporting;

(viii) Develop a communications strategy, including a log of liaison and feedback from the public and actions made in response.

1.4.3 As agreed for the Outline consent, the contractor will operate under an Environmental Management System (EMS) which complies, as a minimum, to the requirements of BS EN ISO 14001:2004. This standard includes the preparation and use of a CEMP which provides a high-level structure to the system that will be implemented for the construction phase of the project. The CEMP will be reviewed regularly by the Principal Contractor's Environmental Manager in consultation with the project team to ensure that it remains relevant and effective.

2 CONSTRUCTION PROGRAMME AND PHASING

2.1 Overarching Phasing Strategy – REEC Development Site

2.1.1 The REEC site is currently being constructed in line with the phased programme of works that commenced in 2015. The phasing of the works largely follows the phasing plans prepared and agreed as part of the outline planning consent, attached hereto at **Appendix B**. These principally comprise three main phases, summarised as follows:

(i) **Phase 1** – Demolition of existing College buildings. Construction of the main College building, Secondary School, SEN School;

(ii) **Phase 2** – Demolition of existing sports facilities and remaining existing College buildings. Construction and commissioning of Sports Centre and pitches, STEM Centre, external works, construction of 1st phase of development and access road.

(iii) **Phase 3** – Construction of Tech Hub, improvements to A316 Langhorn Drive, 2nd phase of residential development (residential access established) and final landscaping works.

2.1.2 It is understood that Phase 1 of the development is now complete; however, the remaining phases have been subject to significant delays due to the impact of COVID-19 and its associated lockdown restrictions. It is likely that these phases would be reconfigured as the construction programme progresses, with the residential development to be commissioned as a single phase of the Phase 3 works.

2.2 Residential Development Phasing

[THIS SECTION IS TO BE UPDATED FURTHER ONCE A PRINCIPAL CONTRACTOR HAS BEEN APPOINTED].

2.2.1 The programme and timings for the demolition and construction of the residential site is broad at this outline stage and will likely be subject to modification by the Principal Contractor prior to commencement.

2.2.2 The programme of works will be subject to review to take into account external factors like the works programme for other parts of the REEC site (such as the construction of the A316 Chertsey Road/Langhorn Drive junction for example) and subject to any extenuating circumstances, such as COVID-19 for example.

2.2.3 The construction works are currently scheduled to commence in September 2021, lasting for approximately 3-years (36 months). Further details of the construction programme are provided in **Figure 3.2.**

2.2.4 As indicated above, the proposed residential development will no longer be constructed in two phases, the development would be constructed in one continual phase, with construction commencing at the eastern end of the site, closest to Egerton Road, and progressing to the western end of the site towards Marsh Farm Lane, terminating with the completion of the works to Marsh Farm Lane and the residential access road.

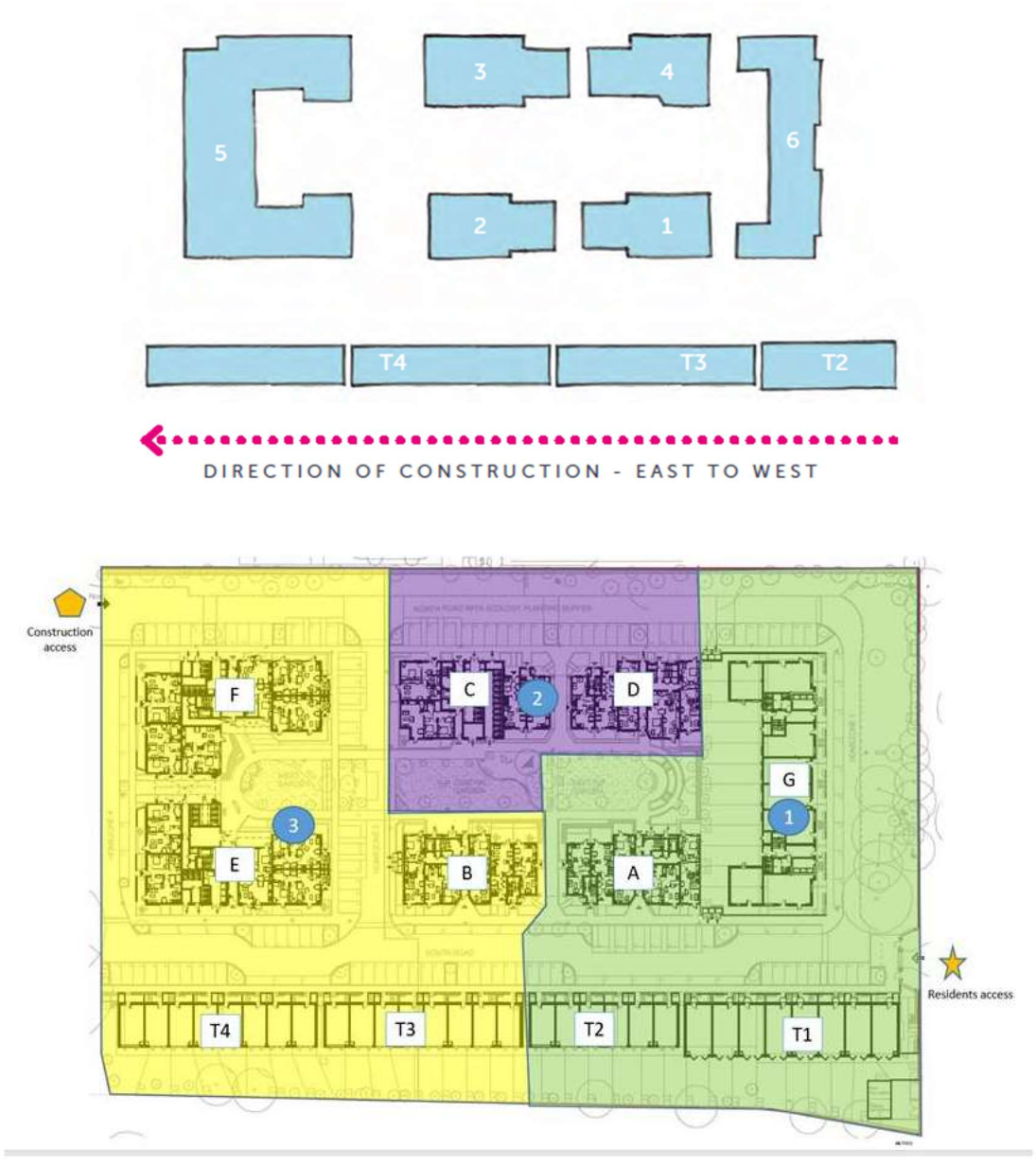


Figure 3.2 Indicative Construction Phasing

2.2.5 Construction is anticipated to take three years (36 months) in total, with the first homes being completed at the end of the first year. The temporary access off Egerton Road would be used for a period of 12 months, where some homes are occupied and there is still significant ongoing construction on the remainder of the site.

2.3 Construction Programme

[A FULL PROGRAMME OF WORKS SHALL BE PROVIDED BY THE CHOSEN MAIN CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION AND MONITORED REGULARLY THROUGHOUT THE PROCESS.]

2.3.1 **Figure 3.2** summarises an indicative programme of works, highlighting the approximate duration of key phases of the residential development. This table is indicative and would be updated with more accurate timings as part of a detailed CLP which is likely to be conditioned as part of any planning consent in any event.

Construction Programme	Start	End
Site Setup and demolition	Sep 2021	Jul 2022
Phase 1 Build (including Blocks A, C, D, G and Housing Terraces 1 and 2)	Sep 2022	Aug 2024
Phase 2 build (including Blocks B, E, and F)	Oct 2022	Jul 2024
Housing Terraces 3 and 3	Jul 2023	Jul 2024

Figure 3.2 Indicative Construction Programme

2.3.2 As detailed above, it may be that due to the phasing strategy for the development (to be constructed east to west) that the construction of blocks will be completed at staggered times instead of the blanket programme set out in **Figure 3.2**. However, the overall build programme duration will largely remain the same.

2.3.3 Further detail regarding the average number of vehicles and types of vehicles anticipated during each phase of works is provided in Section 3 of this report.

2.4 Proposed Working Hours

2.4.1 Construction works on the site will typically commence/finish at the following times:

(i) Monday to Friday 8.00am - 6.00pm

(ii) Saturday 8.00am - 1.00pm

(iii) No Sunday, bank holiday or public holiday working

2.4.2 The term 'working' shall, for the purpose of clarification include the use of any plant or machinery (mechanical or other) and the carrying out of any maintenance/cleaning work on any plant or machinery. Under no circumstances will construction works take place outside of these times specified without prior agreement with LBRuT/TfL.

2.4.3 It is anticipated that all construction deliveries would be managed by the Principal Contractor in order to ensure deliveries avoid opening and closing times associated with the College/Schools and hence minimise the impact of construction on the college and local highway network. It is anticipated that construction deliveries would be undertaken between 10am and 2.30pm only.

3 CONSTRUCTION VEHICLE ACCESS & ROUTING STRATEGY

3.1 Vehicular Access Arrangements

3.1.1 All construction traffic would gain access via Langhorn Drive/A316 Chertsey Road only, as was agreed in the outline and reserved matters consents. All construction deliveries will be undertaken on the site and away from the local highway network.

3.1.2 Full details of these arrangements would be detailed within a full Construction Management Plan and coordinated with the other phases of the REEC development. However, it is likely that a temporary haulage road would be constructed to serve all construction traffic, in a similar layout to the final scheme shown on the drawing at **Appendix D** (without the traffic calming), to then be constructed as the final access road to serve the residential development once construction is complete.

3.1.3 To facilitate the delivery of the development there will be a requirement for a temporary vehicular access to serve residents of the development from Egerton Road during a period of the construction programme. This is considered important from a site management and safety perspective in order to avoid the potential conflict between construction traffic/activity and residential traffic.

3.1.4 In addition to the safety benefits in separating construction and residential traffic, the temporary access allows Clarion Housing to allow new residents to move in once homes are complete rather than have new homes completed but unoccupied. It also allows homes and Landscaping on Egerton Road to be completed first reducing the impact of construction on residential neighbours.

3.1.5 The temporary access off Egerton Road would be used for a period of 12 months, where some homes are occupied and there is still significant ongoing construction on the remainder of the site. This access would enable the early occupation of the development prior to the completion of the full development when all vehicular access would then be gained from Langhorn Drive and Chertsey Road.

3.1.6 There would be no through route permitted across the site in either direction and all early residents of the development would use the temporary entrance to gain access.

3.1.7 All new residents occupying the development during the initial 12-month period would be made fully aware of the temporary nature of the vehicle access and kept up to date on the timescales for its permanent closure. As committed to under the Outline planning consent, a new and improved signalised junction is due to be constructed where Langhorn Drive meets the A316 Chertsey Road. Construction of these junction improvement works are currently due to commence in Summer 2021. The construction of these junction improvement works is the responsibility of Richmond College.

3.1.8 Drawing **2020/5453/004** attached hereto illustrates the proposed temporary access arrangement to be implemented during the construction phase. The proposed access would provide suitable geometry to allow two cars to pass at the bell-mouth.

3.1.9 The proposed access arrangement would also provide suitable space for a refuse vehicle to enter and exit the site, with space temporarily laid out for a refuse vehicle to turn on site. A temporary agreement would be arranged with LBRT's refuse collection department to add this arrangement to its existing route off Egerton Road.

3.1.10 The proposed temporary works on Egerton Road will be secured through an appropriate legal agreement there will also be the requirement for a legal agreement to undertake works within the public highway with the details to be agreed by the Council. This will include, amongst other details, the requirement for the temporary access to be closed off and the footway reinstated with full height kerbs.

3.1.11 Following the completion of the works the Egerton Road access will continue to provide pedestrian and cycle access as an important link towards Twickenham town centre and the railway station, for example (as proposed).

3.2 Construction Vehicle Management

3.2.1 On-site car parking for construction workers will be restricted to an absolute minimum as there will be a general policy of not providing any car parking on the site. Parking on local residential roads to the east of the site is prohibited by the existing Controlled Parking Zones (CPZs). The construction workers will be encouraged to use the nearby public transport connections available. Provisions will be made within the site for essential on-site parking if required for emergencies and for minibus set down point.

3.2.2 To encourage the use of cycles by contractors, secure cycle parking and changing facilities with showers will be provided.

3.2.3 To minimise the likelihood of congestion during the demolition and construction period, strict monitoring and control of vehicles accessing and egressing, and travelling across the site will be implemented. All on-site construction vehicle trips will be pre-arranged and pre-booked as part of the efficient operation of construction work. The use of a booking system and having the delivery times agreed with each contractor means that vehicles are not forced to wait prior to entering the site.

3.2.4 It is anticipated that large delivery vehicles would generally be used by the various trades employed and throughout the various phases of construction in order to reduce the frequency of deliveries, which would be managed appropriately to avoid excessive impact on the local highway network.

3.2.5 The following list provides an indication of the types of vehicles regularly anticipated during the construction process.

Construction Vehicle	Operation	Dimensions
Skip Lorries	Waste Removal	Length: 6.3m Width: 2.9m Height: 2.9m
Large Tipper Lorries	Transporting loose material	Length: 10.2m Width: 2.5m Height: 2.9m
Small Tipper Lorries	Transporting loose material	Length: 6.5m Width: 2.5m Height: 2.9m
Concrete Lorries	Mixing components and materials	Length: 8.4m Width: 2.4m Height: 4.0m
Flat-bed Trucks	Transport Materials / Steels etc	Length: 8.0m Width: 2.1m
Transit Vans	It is anticipated that these will be used for the majority of finishing materials and sanitary ware	Length: 5.3m Width: 2.0m Height: 2.5m

Figure 3.1: Types of Construction Vehicles

3.2.6 In addition to these regular vehicles, there will be a requirement for access mobile cranes for the delivery of mobile cranes and road sweepers.

3.3 Routing Strategy

3.3.1 Prior to the commencement of the development, a Construction Logistic Plan CLP) will be submitted and approved by the Local Planning Authority. As part of the Outline planning consent an Outline CLP was prepared and is attached at **Appendix E** for information/reference.

3.3.2 As detailed above, construction access would be provided via A316 Chertsey Road, which forms part of the Transport for London Road Network (TLRN) with convenient links to the Strategic Road Network (M3 Motorway) to the west and Central London to the east.

3.3.3 The CEMP will ensure that all construction activities prioritise the use of the TLRN and SRN and avoids the use of residential streets, particularly those to the east.

3.3.4 In addition, waiting vehicles will be avoided through strict management of delivery times by the use of a regulated on-line booking system controlled by the Principal Contractor. The form of construction vehicle management will be confirmed by the Principal Contractor prior to the commencement of works on the site,

3.4 Estimated Vehicle Movements

[THIS SECTION IS TO BE UPDATED ONCE A MAIN CONTRACTOR HAS BEEN APPOINTED].

3.4.1 The TfL Construction Logistics Planning tool has been used to provide an estimate of construction traffic associated with the development, based on RGP's experience of similar construction works in London. A summary is provided in **Figure 3.2** whilst the TfL CLP Tool is provided at **Appendix C**.

3.4.2 This table would be updated once a Main Contractor has been appointed and the level of vehicle trips for each phase becomes clearer.

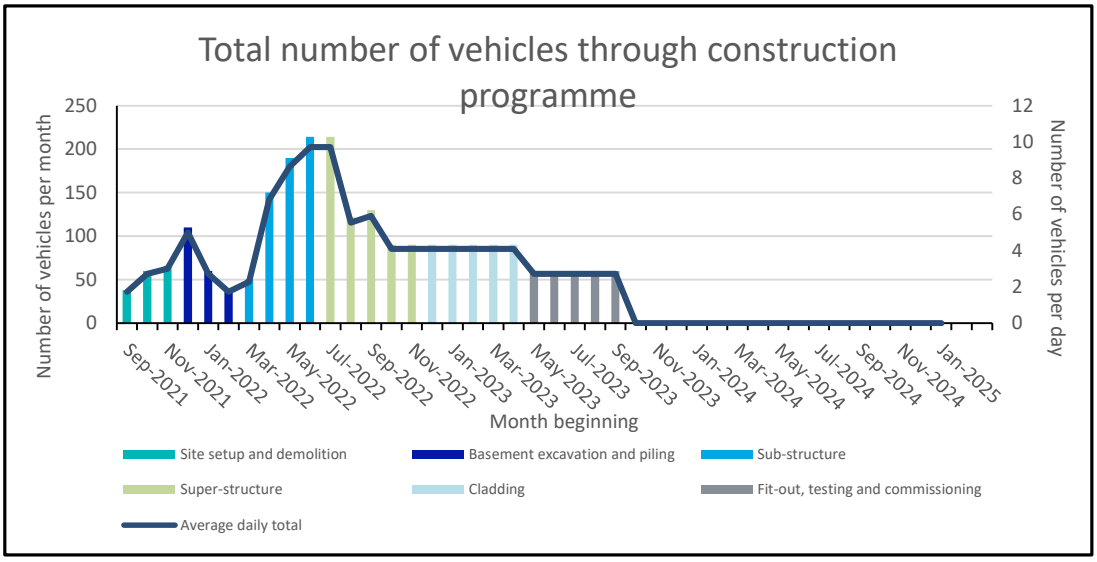


Figure 3.2: Proposed Construction Vehicle Movements (TfL CLP Tool)

3.4.3 As shown, the proposed development is anticipated to generate up to 10 deliveries over the course of a day during peak periods of construction (up to 1 per hour). On average however the site would generate approximately 4-5 deliveries per day, all of which would be managed accordingly by the Construction Manager to ensure only one vehicle arrives at the site at any given time. All loading/unloading would be assisted by qualified traffic marshals.

3.4.4 Delivery schedules will be produced in order to obtain the profiles of future construction vehicle trips to regulate deliveries and eliminate bottle necks. A holding area has been identified close to Sunbury Cross on the A316 which may be used to control the number of construction deliveries coming into close proximity of the site.

3.5 Pedestrians and Cycle Access Arrangements

3.5.1 Pedestrian and cycle access during the construction process will be restricted to site personnel only. Footway provisions at and across all access points will be kept segregated from vehicular activities at all times, with appropriate traffic management to be planned and executed through the Construction Method Statement.

3.5.2 As detailed on drawing **2020/5453/004**, the temporary residential access off Egerton Road will include a segregated footway.

3.5.3 It is not anticipated that any footway or cycleway diversions would be necessary during the construction process. However, it may be necessary to apply a temporary closure of the footway across the site frontage on Egerton Road in order to facilitate the implementation of the temporary vehicle access to residents of the development in the early phases.

3.5.4 The Site Manager will consider the need for any footway closures or diversions as works progress on the site and as site conditions change. Any such closures would not be implemented until the appropriate permissions and licences have been obtained.

4 SITE SETUP

[THIS SECTION SHALL BE UPDATED AND MAINTAINED ONCE A MAIN CONTRACTOR IS APPOINTED AND A CONSTRUCTION PHASE HAS BEEN PREPARED.]

4.1 Pre-commencement and Enabling Works

4.1.1 Further details of the pre-commencement work and the roles and responsibilities in implementing these tasks are provided in Sections 6 and 7. These tasks principally include:

(i) Preparation of Health & Safety Plans, Demolition Method Statement and Construction Method Statement;

(ii) Geotechnical Site Investigations to inform the detailed structural design and confirm ground conditions at the site;

(iii) Arboricultural works – including the protection of any trees/vegetation to be retained and removal of trees/vegetation where applicable;

(iv) Installation of any site hoarding and security fencing;

(v) Ground re-profiling works;

(vi) Service disconnections and diversions;

(vii) General clearance; and

(viii) Installation of temporary surface water management measures.

4.1.2 Prior to any works commencing, site hoarding will be installed around the curtilage of the site works to prevent unauthorised access to the construction areas of the site and to warn pedestrians of the potential dangers of construction zones. The hoarding would not affect the ability for pedestrians to use the footway on Egerton Road and would provide an appropriate boundary treatment to the rear of the dwellings which front Craneford Way, for example.

4.1.3 The appropriate hoarding licenses would be acquired by the Principal Contractor in advance and prior to commencement of work on the site. Appropriate signage would be erected around the curtilage of the site by the Principal Contractor. Signage would also give clear instruction for safe routes of passage by both vehicles and pedestrians and will be continually adapted to suit any varied stages of construction. Temporary lighting will also be provided across the site, as necessary, particularly during the winter months.

4.2 Demolition

4.2.1 The existing buildings on the site will be demolished prior to the construction of the development. It is anticipated that the demolition works would be carried out according to the following sequence:

(i) Internal strip out of existing buildings;

(ii) Removal of mechanical plant; and

(iii) Deconstruction of the existing buildings. There would be a commitment to reuse demolition materials on the site where appropriate (see Section 7). Recycling works associated with demolition materials would be managed to avoid disturbance out-with the site, including the restriction of activity to the centre of the site and undertaking activities within normal working hours.

4.2.2 Asbestos identified from the Asbestos Register would be removed and disposed of by a fully licenced and qualified contractor before any other works are undertaken.

4.2.3 Temporary site offices and welfare facilities would be made available during the initial demolition phases of the residential scheme, in liaison with other parts of the REEC development site (potentially shared). These arrangements will be confirmed and implemented by the Principal Contractor prior to commencement, with the proposed layout to be confirmed by the preparation of a Construction Phase Plan.

4.3 Construction Site Setup

4.3.1 The location of the site compound and material stockpiles will be determined by the appointed contractor according to measures detailed in a Construction Method Statement, to be agreed and implemented prior to commencement. An Outline Construction Method Statement was prepared for the Outline consent and is attached to this CEMP at **Appendix F** for reference.

4.3.2 **Figure 4.1** below provides an indicative plan of the construction set-up for the site during the main building phase of work. The development would be constructed in one continual phase, with construction commencing at the eastern end of the site, closest to Egerton Road, and progressing to the western end of the site towards Marsh Farm Lane.

4.3.3 The site will be designed appropriately to ensure that there is no requirement for skips to be located on the public highway with all goods stored on the site at all times.

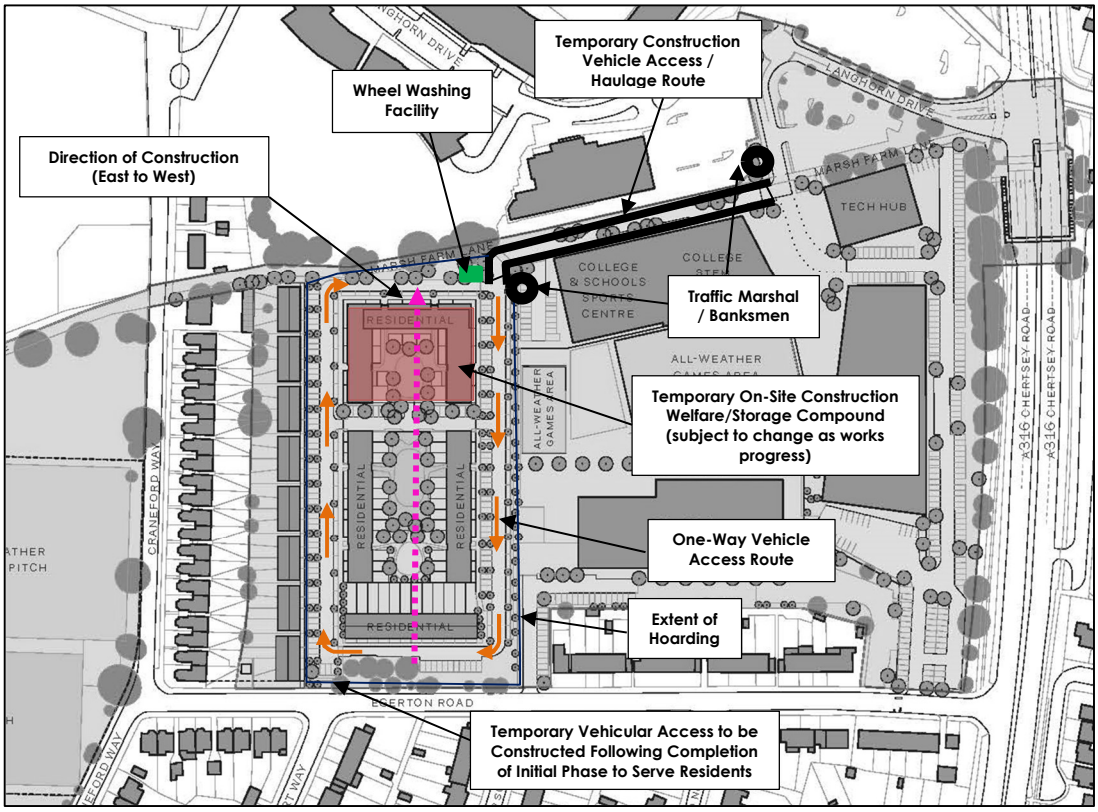


Figure 4.1 Construction Site-Setup (Main Build Phase)

4.3.4 Monitoring of the above elements will be undertaken by a Site Manager, appointed by the Principal Contractor, throughout the programme of works, for the safety of all those staff associated with the works, the adjacent college and users of the public highway, at all times. The above elements will be amended, with additional mitigation processes put in place, as required, as the construction programme evolves.

4.4 Storage of Plant and Materials

4.4.1 All plant and materials would be stored within designated storage compounds on the site during the demolition phase, to be determined by the Principal Contractor.

4.4.2 The development would be constructed in one continual phase, with construction commencing at the eastern end of the site, closest to Egerton Road, and progressing to the western end of the site towards Marsh Farm Lane. As such, all plant and materials would be stored within a designated storage compound at the western part of the site during the initial building phases, as illustrated in **Figure 4.1**, and reduced and repositioned towards the final phases of construction. It is anticipated that an area of proposed car parking at the western extent of the site could be marked out for storage purposes only during the final build phase, for example, given that these bays would be vacant.

4.4.3 Safe and adequate access will be provided to all parts of the site, and the site must be kept tidy. When the work has stopped for the day, the site will be secured, all ladders and access removed, the plant must be immobilised, and all hazardous materials will be safely stored.

4.4.4 Storage locations will need to be constantly reviewed as work progresses and the site conditions change. Signage and pedestrian protection will need to be constantly updated and communicated to all as these works develop.

4.4.5 There will be no storage of goods or waste on the local highway. All plant and materials will be stored on the site at all times.

4.4.6 Some operations including sheet piling, concrete pours and super-structure construction may require the use of a crane to offload, lift and distribute materials for use. Crane lifts will be contained within the secured site boundary as to not disturb the adjacent properties in such an event. The relevant licenses and design detail would be confirmed by the appointed Principal Contractor prior to commencement.

5 MANAGEMENT OF TRAFFIC IMPACTS

5.1 Planned Measures Checklist

5.1.1 All traffic management measures will be managed by an appointed Site Manager who will enforce compliance and monitor any change in circumstances that may arise. The Site Manager will be the key point of contact with LBRT with regard to all issues relating to construction traffic impacts.

5.1.2 **Figure 5.1** summarises the committed, proposed and considered measures, in line with TfL's requirements for a 'medium' impact scheme. Each of these measures are discussed in this section.

Planned Measures Checklists	Committed	Proposed	Considered
Measures influencing construction vehicles and deliveries			
Safety and environmental standards and programmes	x		
Adherence to designated routes	x		
Delivery scheduling	x		
Re-timing for out of peak deliveries	x		
Re-timing for out of hours deliveries		x	
Use of holding areas and vehicle call off areas			x
Use of logistics and consolidation centres			x
Vehicle Choice			x
Measures to encourage sustainable Freight			
Freight by Water			x
Freight by Rail			x
Material Procurement Measures			
DfMA and off-site manufacture		x	
Re-use of Materials on site		x	
Smart Procurement		x	
Other Measures			
Collaboration with other sites in the area	x		
Implement a Staff Travel Plan	x		
FORS	x		

Figure 5.1: Planned Measures Checklist Table (TfL CLP Guidance for Medium Impact Schemes)

5.1.3 In contrast to the TfL guidance (**Figure 5.1**) it is noted that the production of a '*delivery schedule'* will be a committed measure to ensure that there is no overlap with delivery vehicles, no unscheduled deliveries and the public highway is kept as free flowing as possible. As a result of this the '*use of a holding area or vehicle call off area'* will be considered, as available from the works to the School Development Zone, but not essential given that there is unlikely to be any unscheduled deliveries.

5.2 Committed Measures

Safety and environmental standards and programmes

5.2.1 The Main Contractor is committed to ensuring all staff and sub-contractor vehicles arriving at site comply with the details outlined in this document.

5.2.2 All vehicles and driver management practices are required to comply with the FORS accreditation and Construction Logistics and Community Safety (CLOCS), details of which are included at **Appendix G** of this report.

5.2.3 The contractor will sweep the roads and footpaths on the local highway network as required on a daily basis to remove any spoil or debris deposited on the highway resulting from the construction.

Adherence to designated routes

5.2.4 All vehicles would be required to adhere to the routes identified in order to minimise impact on the local highway and to reduce associated emission levels. This principally includes the prioritisation of the use of the TLRN and avoiding the use of any local streets as much as possible.

5.2.5 Delivery drivers will be notified of the proposed access arrangements prior to their scheduled delivery time and adhere to the agreed routes and access arrangements.

5.2.6 All deliveries will be supported by traffic marshals and banksmen to ensure the safe passage of materials to and from the site, without impacting on highway or pedestrian safety.

5.2.7 Vehicles being off-loaded with goods at the site shall switch off their engines to avoid nuisance to the adjacent uses and to prevent dust generation.

Delivery scheduling

5.2.8 All deliveries will be booked in advance and managed by the Site Manager, in liaison with the relevant supplier/construction company, in order to ensure that only one delivery vehicle arrives and/or departs the site at any given time.

5.2.9 A delivery schedule will be prepared and kept up to date by the Site Manager. The delivery schedule will detail the anticipated time of the delivery, contact details for the supplier, the type of delivery (i.e. plant, materials, scaffolding) and the size of vehicle anticipated.

5.2.10 All construction deliveries would be booked at least 48 hours in advance in advance with the Site Manager, with 30-minute time slots allocated to each delivery vehicle (unless greater time is needed) and undertaken in a timely fashion to ensure only one delivery vehicle arrives at the site at any given time. All deliveries will be made within the designated delivery times (10:00am to 2:30pm) to avoid interaction with the peak periods of operation at the College and Schools.

5.2.11 Construction vehicle drivers will be issued with a project route map to prevent unnecessary routing mistake to and from the site and to avoid particular routes.

5.2.12 Through the use of a delivery schedule, the number of construction deliveries each day can be restricted in order to minimise impact on the adjacent highway network and to pedestrians.

5.2.13 Whilst unlikely given the booking system in place, construction vehicles may be held in an off-site holding area until the site is ready to receive the vehicle. The Site Manager will communicate by mobile phone call or text with the construction vehicle drivers to inform them when they can proceed to the site.

5.2.14 Traffic Marshals and banksmen will be informed and will be ready for arrival of the delivery, anticipating the type of delivery and the unloading method to be utilised.

5.2.15 Any deliveries not booked in may be turned away at the Contractor's cost.

Re-timing for out of peak deliveries

5.2.16 Re-timing for out of peak time will aid the operational efficiency of the construction site and also the neighbouring area.

Collaboration with other sites in the area

5.2.17 Co-ordination will take place with other construction sites/businesses if found to be necessary when larger vehicles are required to deliver to site, in order to reduce the number of vehicle movements, length of journeys and subsequent vehicle emissions.

5.2.18 This is particularly important with the other phases of construction on the REEC site, including the amalgamation of arrival/departure times of site personnel (by minibuses, for example) to be coordinated, as well as the use/transfer of plant and materials that might be needed on both sites to avoid duplication.

Implement a Staff Travel Plan

5.2.19 No car parking provision will be provided on-site for staff, given the availability of public transport services available within the local area. The local area provides frequent bus, rail and London Overground services available from within close proximity of the site. In order to encourage the use of sustainable travel and reduce reliance upon private car use by staff, a number of travel planning measures will be applied by the Principal Contractor. The following principles will be followed:

(i) Use of local suppliers, as far as reasonably possible, to reduce distance travelled and associated vehicle emissions;

(ii) Use of local labour / operatives who are more likely to reside within the local area and therefore travel by sustainable modes, as far as reasonably possible;

(iii) Providing operatives with timetable bus/rail information, if requested;

(iv) The potential to provide lockers on-site for tools and materials of construction staff will be explored by the Main Contractor to make sustainable travel more convenient for staff. This could be provided in a designated area within the construction compound;

(v) An induction programme for all staff, making them aware of the limited parking available and convenient access via sustainable modes.

5.2.20 The previous CEMP documents for other phased of the REEC included the provision of a travel leaflet, as attached at **Appendix H**. This leaflet would be provided to all construction works, with the information to be updated prior to issue.

5.2.21 As detailed in the Outline CEMP, a mini-bus service is provided and will be retained to pick-up and drop-off personnel from local areas and public transport nodes.

FORS

5.2.22 Delivery companies will be encouraged to sign up to TfL's Freight Operators Recognition Scheme (FORS). This is a voluntary industry-led membership scheme which aims to raise the standard of the fleet and freight industry by improving operators' performance with regards to safety, fuel efficiency, economical operation and vehicle emissions. It seeks to provide a quality and performance benchmark for the freight industry.

5.3 Proposed Measures

Re-timing for out of hours deliveries

5.3.1 The delivery schedule would ensure that there are no unscheduled deliveries however in such an event any unscheduled delivery arrival out of hours will be turned away and re-timed as appropriate.

DfMA and off-site manufacture

5.3.2 Options for off-site manufacture will be explored wherever possible and discussed with each contractor prior to appointment.

Re-use of Materials on site

5.3.3 The proposed construction works would adopt the principles applied by DEFRA with respect to the management of waste at the site. This gives top priority to re-using materials on the site, wherever possible, and these principles would be adhered to throughout the construction process in order to minimise the environmental impact of the proposed works and to minimise the level of construction deliveries.

5.3.4 Further detail regarding the environmental strategy is set out in Section 7 of this report.

Smart Procurement

5.3.5 The site will look to source materials form local suppliers where possible as well as from the same suppliers as other local sites if appropriate to reduce the number of vehicle movements and length of journeys for materials to arrive on site.

5.4 Considered Measures

Use of holding areas and vehicle call off areas

5.4.1 As per the Outline scheme, a temporary holding area is sited at Sunbury Cross to ensure that the REEC site doesn't become saturated with deliveries. Whilst this is not considered essential for the residential development, since a delivery schedule will be prepared and there are unlikely to be any unscheduled vehicles, the Site Manager will be aware of its availably should unforeseen circumstances arise.

Vehicle Choice

5.4.2 **Figure 3.1** outlines the types of vehicles anticipated at the site. It is anticipated that large construction vehicles would generally be used during the main construction phasing of work, in order to minimise the frequency of deliveries to the site.

5.4.3 The Main Contractor would make every effort to ensure that the level and type of vehicles used are consistent with those outlined in this document.

Freight by Water & Rail

5.4.4 Due to the location of the site, these represent unlikely and impractical opportunities for goods to be transferred to and from the site.

6 MANAGEMENT OF DEMOLTION, EXCAVATION AND CONSTRUCTION ACTIVITIES

6.1 Overview

6.1.1 This section sets out the general site management for the construction and demolition works, and the roles and responsibilities in implementing the measures outlined in the Full CEMP.

6.2 Considerations and Challenges

6.2.1 There are some notable constraints associated with the construction works at the site. The following considerations and challenges are noted for this site:

(i) The proximity of the College and Schools which would remain operational throughout construction;

(ii) The proximity of the adjacent residential community;

(iii) The constrained vehicle access arrangements serving the development during construction.

6.2.2 The Contractor will therefore need to be committed to carrying out these works in the most practicably sustainable manner. Given the site's location and the scale of construction works proposed, the need to minimise the impact associated with the construction works is fully recognised and the proposed construction works have been considered on this basis within this CEMP.

6.3 Key Roles & Responsibilities

6.3.1 The CEMP will form part of the demolition, excavation and construction contracts for the site. Implementation of a CEMP will be the responsibility of the Principal Contractor. The construction procedures in terms of access and site setup and enabling works would be the responsibility of an appointed Site Manager. Environmental support and monitoring during these phases will be provided by an appointed Environmental Manager.

6.3.2 **Figure 6.1** below provides an indicative summary of the key roles and responsibilities of on-site management personnel during the various phases.

Designated Role	Responsibilities
Project Manager/CDM Co-ordinator	Responsible for ensuring any planning conditions are adhered to by liaising with the Site Manager and Environmental Manager on a regular basis. Responsible for the approval of the CEMP, Construction Phase Plan and Health and Safety Plan in liaison with the Local Planning Authority.
Site Manager	Overall responsibility for the specific demolition and construction activities that occur on site. Responsible for enforcing the CEMP and ensuring all personnel on-site adhere to the procedures within it. Responsible for site setup, including completion of a Construction Method Statement. In the event of an environmental incident or emergency, the Site Manager will liaise with the Environment Manager and enforce and modifications to method statements or stoppage to works required.
Environmental Manager	Ensures that environmental monitoring is undertaken, where necessary. Liaison will be undertaken with the Site Manager in the event of an incident to advise on actions to be taken.

Figure 6.1 Roles and Responsibilities

6.3.3 As detailed above, Site Manager will own and manage the implementation of this document. Their wider responsibilities will include keeping data on:

(i) The number of vehicle movements on site - collected through the delivery booking system;

(ii) Types of vehicles on site;

(iii) Time spent on site;

(iv) Delivery accuracy compared to schedule;

(v) Vehicle routing, unacceptable quieting or parking;

(vi) Reviewing FORS accreditation;

(vii) Non-Road Mobile Machinery compliance (NRMM) of plant on site;

(viii) Staff travel modes to sites;

(ix) Driver inductions and briefings including accreditation/qualification checks where required.

(x) Distributing Contractor and Driver Handbooks, as appropriate, to ensure all staff are aware of their obligations and the procedures which are set out in detail throughout this report. These would be provided to staff by the Principal Contractor in advance.

6.3.4 The Site Manager will review this document regularly and as conditions change. Records of any updated/revisions will be maintained by the Site Manager and held on file, onsite, including all certificates and inspection records for all plant, equipment, and lifting etc. that are required for traffic management and construction purposes.

6.3.5 In the event of an emergency, the Site Manager should be contacted in the first instance. Relevant procedures will then be advised, or the matter referred to the Environmental Manager if appropriate.

6.4 Site Induction & Site Safety

6.4.1 A site induction will be carried out to confirm the site setup and potential environmental impacts of the activities associated with the demolition, excavation and construction stages. This induction would be presented to all site staff and visitors. All site personnel will be required to sign a record of attendance to the induction, to be kept on file by the Site Manager.

6.4.2 All personnel entering the site shall be required to wear suitable Personal Protective Equipment (PPE), which will be provided by the Principal Contractor, if not already available. Any persons not wearing suitable PPE may be asked to leave the site.

6.4.3 The operations of the site will be regularly inspected to ensure that all procedures are in compliance with this document. Daily inspections by the Site Manager will ensure that the setup of the site is concurrent with the construction phases and there are no potential hazards. Any adverse impacts shall be recorded and immediately rectified if they arise.

6.4.4 All records of logistic-related and staff-related incidents or injuries will be held on file onsite at all times.

6.5 Communication Strategy

6.5.1 The Principal Contractor will be proactive in facilitating communication with local stakeholders. The Environmental Manager will ensure that the Site Manager is fully aware of particular environmental effects of future phases of the works.

6.5.2 The contact details of the Site Manager including an emergency out-of-hours contact will be published at the front of the site and will seek to respond to any formal complaint received within 7 business days with respect to community concerns, vehicle routing issues and unacceptable parking by staff, for example.

6.5.3 As outlined in this document, it is a requirement for vehicles and contractors to adhere to the FORS and CLOCS initiatives. Any contractors which are in breach of these schemes and requirements shall be notified and any disciplinary issues dealt with as appropriate.

6.5.4 The Site Manager will be expected to develop a constructive relationship with those in the immediate vicinity and community of the development. A forum for consultation with the public will be set up, where feedback will be encouraged and updates on the development will be posted to keep the community up to date with activities on site. This is likely to be a continuation of the current communications strategies in place for the wider REEC development site.

7 ENVIRONMENTAL STRATEGY (MITIGATION & MONITORING)

7.1 Overview

7.1.1 This section summarises the key measures to be put in place to ensure that the environmental impacts of the demolition and construction works are minimised.

7.1.2 All demolition, excavation and construction activities will be carried out using methods which minimise the impacts on environmental receptors. The Outline CEMP for the REEC site included a series of best practice measures to be applied to the various phases of construction, which have been considered further in this CEMP.

7.1.3 The full CEMP will ensure that potential pollution risks and all aspects of site work which may impact on the environment will be systematically identified along with preventative measures and mitigation. Each of the sections of this Outline CEMP below sets out what measures are to be implemented by the Principal Contractor and how the effectiveness of the measures in reducing impacts is to be monitored.

7.2 Ensuring Resource Efficiency

7.2.1 The contractor(s) full CEMP will detail the approach for a range of resource efficiency principles, including sourcing local materials and services, auditing materials for environmental performance and options for the re-use of supplies. The full CEMP will be implemented alongside a carbon foot printing procedure that will minimise carbon demands of the development during the construction phase, identifying the use of renewable resources of energy and incorporate efficient energy supply and low carbon technologies where possible.

7.3 Management and Mitigation of Noise & Vibration

7.3.1 Construction works are generally high noise generating sources of activity and given that the adjacent uses would be operational throughout the construction process, a number of mitigation measures will be enforced and/or considered to suppress noise and vibration generated on the site.

7.3.2 The Site Manager will be responsible for the monitoring and management of noise at the site and adhering to the Noise Working Standards set out by the Local Authority and Environmental Health Department.

7.3.3 If the measured noise level rises more than 3dB (A) above the predicted noise level, or in the event that a noise complaint is received locally, the Site Manager shall investigate the cause and noise levels shall be reduced, if it is reasonably practicable to do so. A number of mitigation measures shall be considered to suppress noise generated on the site, including:

(i) Ensuring that all work is undertaken within the restricted working hours;

(ii) Using 'silenced' plant and/or equipment and low vibration construction methods, wherever possible;

(iii) Using mains power instead of generators, wherever possible;

(iv) Ensuring all operatives are professionally trained and provided with ear and eye protection;

(v) Ensuring delivery drivers turn off their engines upon arrival and when loading/unloading goods. No plant shall be left running when not in use;

(vi) Using protection plates and mobile screens around those parts of the site likely to generate significant levels of noise. Such screens will have sufficient mass as to be able to resist the passage of sound;

(vii) Strategically placing noise generating plant as far as possible from sensitive receptors and the general public;

(viii) Ensuring all deliveries are scheduled and assisted by a Traffic Marshal to ensure deliveries do not need to wait to park. Idling will in no instances be acceptable.

(ix) All plant and machinery shall be maintained in good and efficient working order.

7.3.4 Furthermore, this list of mitigation measures is not exhaustive, and the Site Manager (once appointed) is encouraged to investigate other potential measures throughout the construction process.

7.3.5 In the case of vibration, measured vibration levels shall be compared with the criteria in BS 5228:2009 part 2 (i.e. 1mms^{-1} PPV for potential disturbance in residential properties and using a suggested trigger criterion of 2mms^{-1} for commercial properties).

7.3.6 Lower limits must be agreed with the Council if there is a risk that vibration levels may interfere with vibration sensitive equipment or other vibration sensitive objects.

7.4 Management of Air Quality

7.4.1 Impacts on air quality can arise as a result of construction activities, particularly the annoyance of dirt, dust and debris. A number of mitigation measures which are to be enforced at the site are detailed below. It is noteworthy that a *Dust Management Plan* was prepared to accompany the previous reserved matters application for the residential development under planning reference: 18/4157/RES) and a number of the measures below have been considered in line with this approved document.

(i) Using water spray to reduce dust generation, including the use of modern plant equipped with water spray nozzles;

(ii) Using protection plates and mobile screens;

(iii) A wheel washing facility would be implemented on the site, the location of which would be agreed as part of the site setup. The appointed Site Manager would ensure all construction vehicles depart the site in a clean and tidy manor. The Site Manager will also investigate the potential to provide a more suitable location for the facility, should it be deemed necessary, and as works progress;

(iv) Materials/waste stored on the site should be covered, particularly outside of working hours, and damped down if necessary. The storage of materials or waste on the public highway and at other locations will in no instances be acceptable;

(v) All vehicles carrying materials to/from the site shall be covered to reduce the likelihood of spillages or leaks.

(vi) The road edges around the site and within the bell-mouth of the site access will be swept by hand by staff at the end of the day.

(vii) All construction vehicles will prioritise the use of the TLRN and SRN in order to access the site from the wider highway network to reduce the impact of vehicle emissions. Similarly, all construction vehicles on the site during the main build phase will follow the one-way access route to enhance safety and efficiency.

(viii) Special provisions to be provided and agreed with the Highway Authority for any materials containing asbestos, as appropriate;

7.4.2 The Principal Contractor will liaise with LBRT throughout the construction process any incidents leading to excessive elevations of dust levels will be reported to the Environmental Health Department. Any complaints received shall be documented by the Site Manager, who will also act as a point of contact for residents who may be concerned about elevated dust levels.

7.5 Control of Light

7.5.1 The use of light would principally be controlled by the operating hours of the site ensuring that works are typically undertaken during daylight hours only.

7.5.2 Lighting shall be kept a minimum necessary for adequate security and safety. To minimise the potential for nuisance, lighting shall not be located or directed towards neighbouring or adjoining properties.

7.5.3 The Site Manager would consider the following measures to limit the impacts of light:

(i) Provision of minimum light levels necessary for safe working conditions;

(ii) Avoidance of unnecessary light spillage through appropriate direction of lighting towards the area of works and shielding if necessary; and

(iii) Inclusion of a period of darkness to allow bat species to commute across the site.

7.6 Waste Management & Preventation

7.6.1 The Principal Contractor will be responsible for the careful management of waste as a result of construction works at the site. This will be achieved by adopting the key principles of the Waste Hierarchy (**Figure 7.1**, below), as outlined by DEFRA.

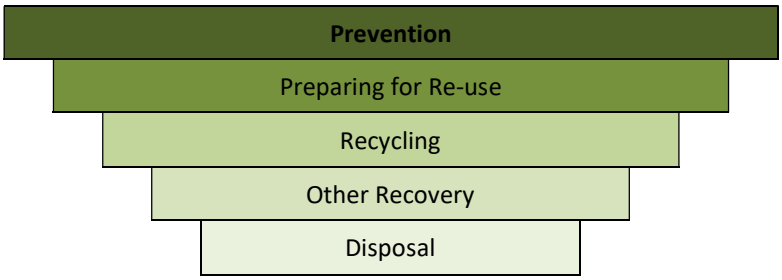


Figure 7.1 DEFRA Waste Hierarchy (Preferred to Least Preferred Option)

7.6.2 This gives top priority to preventing waste in the first instance and provides a procedure to follow when waste is created, including re-using, recycling, recovery and the disposing of waste as a worst case.

7.6.3 All waste generated on the site during construction will be securely stored and collected from the designated construction compounds on the site only.

Prevention

7.6.4 The primary aim with regards to the management of waste during the construction process is prevention, wherever possible, by way of utilising materials which are more durable, and which are less hazardous to the environment, staff and the local community. Once the Principal Contractor is appointed it is anticipated that the site will operate on a 'just-in-time' basis for all goods and waste, to ensure the minimum amount of goods and waste are stored on the site at any given time.

Re-use and Recycling

7.6.5 Opportunities for on-site re-use and recycling of materials will be sought wherever practicable. This will also help to reduce the amount of goods and materials being delivered to the site throughout construction and hence it is appropriate to provide designated areas for the storage of goods during demolition.

7.6.6 Prior to commencement, a pre-clearance/demolition audit will be carried out which will consider the potential for recovering as much material as possible. This will be summarised into a bill of quantities, setting out the anticipated quantities of surplus materials, for example.

7.6.7 Where it is not practical to re-use existing materials on the site, recycling will be sought as a suitable alternative ahead of the possibility of disposal. This could include, but is not limited to, turning waste into a new substance or material such as composting, for example.

Other Recovery

7.6.8 Other opportunities for recovering products and goods will also be considered in the event that recycling cannot be utilised. This may include using different forms of energy recovery technologies such as combustion with energy or anaerobic digestion, for example.

Disposal

7.6.9 The disposal of waste will by no means be encouraged and will only be sought where disposal is the only option. At no time will the dumping of waste be permitted both on the site or off the site. Any waste must be collected from the site only and disposed of by a registered licensed contractor at a licensed landfill site suitable for the type of waste generated.

7.6.10 Burning of surplus material or material arising from the site will not be permitted within the site as confirmed below.

Site Waste Management Plan

7.6.11 A Site Waste Management Plan (SWMP) will be produced to identify waste streams likely throughout the project.

7.6.12 The SWMP will ensure compliance with the statutory waste management Duty of Care, which requires that waste is stored and handled in a manner that prevents its escape. Waste producer records will be kept which cover the transfer of waste to registered waste carriers and its management and disposal at a licenced or permitted facility.

7.6.13 The SWMP will identify key roles and responsibilities within the project team and will include the designated procedures for monitoring, reporting, and record keeping, training and periodic review.

7.6.14 The Mitigation measures to minimise environmental impacts from the storage, transportation and disposal of wastes will likely include:

(i) Careful location of stockpiles and other storage areas;

(ii) Segregation of waste streams to maximise opportunities for reuse and recycling;

(iii) Use of an on-site recycling plant, such as concrete crushing;

(iv) Use of good practice in the design of waste storage areas and the use of suitable waste containers;

(v) Use of sheeting, screening, damping and seeding of stockpiles where appropriate and practicable;

(vi) Control and treatment of runoff from soil and waste soil stockpiles;

(vii) Minimising storage periods;

(viii) Minimising haulage distances; and

(ix) Sheeting of vehicles.

7.6.15 Such measures would help to mitigate the potential impacts remaining after waste minimisation, recycling and reuse have been optimised. Quantities of waste leaving the site will be monitored and recorded under the SWMP.

7.7 Prevention and Control of Fires and Burning

7.7.1 The Site Manager will be responsible for ensuring that fire-fighting equipment and procedures are in place. Appropriate equipment (beaters, sand buckets, extinguishers) are to be located at key locations around the site, close to offices and welfare areas and storage areas. No fires shall be permitted.

7.7.2 The Site Manager will be responsible for ensuring that all personnel are informed of the location of fire-fighting equipment. All personnel will be notified of fire safety procedures, such as safe meeting/assembly points, as part of the induction process.

7.8 Storage of Fuels, Oils and Chemicals

7.8.1 The safe storage of fuels and chemicals shall conform with Government regulations and best practice guidance published by the Environment Agency. The storage areas for such materials shall not be located near sensitive receptors (such as watercourses) to avoid contamination. Site spill kits will be appropriately located.

7.9 Contaminated Land

7.9.1 Contaminated material is defined as that which contains contaminants at levels above the appropriate assessment criteria. Such material is classified as waste by virtue of its contamination. It therefore cannot be re-deposited on site, nor used in construction on site or elsewhere (except under the provisions of the Environmental Permitting (England and Wales) Regulations 2010).

7.9.2 All excavations will be controlled to maximise the opportunity for classification and disposal of inert and non-hazardous waste. A watching brief on contaminated land will be undertaken by members of the contractors site team during the site preparation and excavation in order to identify any unforeseen contamination that may arise during the works which is not identified as part of the site investigation work undertaken prior.

7.9.3 The preferred mitigation measure for excavated contaminated material is treatment off site prior to the return of the recovered material for reuse on site. The suitability of landfills to accept such material will be based on its classification according to the Landfill Regulations and the Environment Agency Waste Acceptance Criteria. Preliminary analysis indicates that while some contaminated excavated material could be disposed of at landfill permitted to accept inert waste, some may require disposal at non-hazardous and hazardous waste sites. Further Waste Acceptance Criteria testing of materials designated for disposal off site will be undertaken once works commence on the Site.

7.9.4 Areas affected by soil chemical contamination at levels above the relevant guideline values for the type of end use will require remediation. The Outline CEMP identified several locations within the residential site where contamination is present (see plan at **Appendix I**) associated mainly with made ground.

7.9.5 All proposed garden areas within the residential area will be remediated as a precaution by removing the made ground to a depth of at least 0.75 m and replacing it with clean sub-soil and topsoil from certified sources.

7.9.6 Wherever possible, contaminated soil that must be removed from site will be sent to an off-site treatment centre rather than to landfill. The quantities of such material likely to arise on the Site are so small that on site treatment is not a practical or economic possibility.

7.9.7 Potential impacts of contaminants in soil on groundwater and surface waters during construction will be mitigated by use of containment and prevention of run-off from stockpiled excavated contaminated materials entering controlled waters.

7.9.8 The above mitigation is required only where there is an ongoing risk of direct exposure to contaminants. Where contaminated material is to remain undisturbed on site potential health impacts will be mitigated where required by containment beneath a capping layer. This situation would apply where potentially contaminated material is situated under roads or car parks.

7.9.9 Mitigation of health impacts of contaminants in soil on construction workers will be through a safe system of work and if required, the use of appropriate protection (Personal Protective Equipment). The principal risk from PAHs arises from direct skin contact, although there is also a risk of exposure via inhalation. Therefore, protection will include face masks and gloves for any personnel coming into direct contact with the material. In addition, where ground works are to take place in areas identified to be at risk of contamination there will be restrictions on access and measures will be taken to control dust during the works, thereby mitigating the inhalation risks.

7.9.10 To prevent excessive exposure to Carbon Dioxide, a safe system of work for any personnel entering enclosed spaces or deep excavations will be implemented. This will involve risk assessments, gas testing prior to entry and provision of breathing equipment where appropriate.

7.9.11 The mitigation for the residential development will require either a reinforced concrete floor slab cast *in situ,* with at least a 1,200 g DPM and underfloor venting, or beam and block pre-cast concrete and a 2,000 DPM with underfloor venting.

7.9.12 All joints and penetrations will also be sealed against ingress of gas in both cases.

7.9.13 In addition, mitigation for ground stability will be included through specification for resistant materials.

7.9.14 In terms of monitoring, a watching brief on contaminated land will be undertaken by members of the contractor's site team during site preparation and excavation in order to identify any unforeseen contamination that may arise during the works which was not identified as part of the site investigation work done to date.

7.9.15 Further testing of soil contaminants for the purposes of selecting the most appropriate treatment/disposal site will be required.

7.10 Water Management & Flood Risk

7.10.1 The Principal Contractor will be responsible for the implementation of measures to prevent pollution/contamination and control the use of water on the site.

7.10.2 Any surface water discharges to a watercourse, from run-off or dewatering, will be subject to a discharge permit which will set flow and quality limits to avoid impacts on the receiving watercourses.

7.10.3 All site works will be carried out in accordance with best environmental working practices, such as Environment Agency Pollution Prevention Guidelines.

7.10.4 Measures to reduce the possibility of disturbing or damaging the existing drainage systems and water supply network will include:

(i) Utilisation of signs to warn of the presence of utility infrastructure;

(ii) Immediate repair of any damage to the drainage network; and

(iii) Preparation of an emergency response plan to ensure that spillages and leakages are immediately contained.

7.10.5 Water saving measures will be adopted where possible, thereby reducing the magnitude of effect on the water supply network; including:

(i) Selection and specification of equipment to reduce the amount of water required;

(ii) Implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both on-site and within Site offices; and

(iii) Use of a grey water recycling water systems where possible such as wheel washes.

7.10.6 Mitigation measures required in relation to flood risk and surface water drainage include:

(i) Installation of sustainable drainage systems at the commencement of each construction phase, as recommended in the outline Sustainable Drainage Assessment;

(ii) Protection of any new SuDS features for long term operation and in particular from being compromised by demolition and construction activities in other construction phases;

(iii) Collection and diversion of surface water through temporary or permanent SuDs to prevent surface water flooding during each construction phase;

(iv) Provision of a temporary bund along the southern boundary of the College playing field development zone to prevent flooding during construction and to avoid any silt and sediment transfer into the River Crane; and

(v) All necessary measures, actions and permits to deal with dewatering of excavation during construction (if required).

7.10.7 Additional mitigation measures to control site activities with potential to affect hydrology, flood risk, water quality and hydromorphology of surface waters will include:

(i) Application of standard good practice such as those published by the Environment Agency A (e.g. Pollution Prevention Guidance series) or CIRIA publications;

(ii) Development of a Water Management Plan to accompany the CEMP, which describes the water pollution management measures and controls that the contractor will implement during the construction process, and details of all drainage systems including flow direction and outlet, pollution sources, methods of pollution prevention and potential receptors (e.g. watercourses and ground);

(iii) Colour coding of clean and foul drainage to minimise the risk of pollution;

(iv) General site controls including measures for bootwash, vehicle and plant cleaning, spill kits and storage of solvents and chemicals on site;

(v) The storage of oils and fuels away from all watercourses with refuelling carried out in a designated bunded area. Any fuel oil tanks will be located within a secondary containment system and / or bunded, with a minimum bund capacity of 110% of the capacity of the tank. All tanks, pipework bunds and pollution prevention equipment will be checked regularly (including for build-up of any liquids in bunds);

(vi) Provision of a low bund around tanker delivery hardstandings, within which tankers can park whilst offloading fuel. The hard standing will be large enough to accommodate the full length of the tanker. Installation of a system to prevent any fuel spillages discharging into the drainage system, without suitable containment or treatment;

(vii) Daily inspection of the Site works to identify any potential run-off from the Site works. The watercourses adjacent to the Site will be protected to ensure that no runoff from the works can enter them. Where risks are identified, a range of settlement options and barriers such as settlement lagoons and French drains will be deployed to prevent silt and fine sediments from entering watercourses;

(viii) Prevention of surface runoff onto sediment generating surfaces such as excavation areas or exposed ground, by utilising the existing drainage system on other parts of the Site, by using or creating temporary drainage systems or cutoff ditches to divert water away, thus minimising the need for settlement and filtration;

(ix) Minimisation of areas of exposed earthworks and disturbed/compacted and loose soil, and covering of exposed ground and stockpiles, for example with geotextiles, to prevent rainwater generating sediment laden runoff. Stockpile sites will whenever possible be located away from the site boundary, sensitive receptors and surface drains, and will have a self-contained drainage system to prevent untreated water release;

(x) Where groundwater is encountered in excavations, use of all necessary temporary works to ensure this does not cause surface water flooding.

(xi) Appropriate measures will be adopted to undertake dewatering at each phase of construction. No discharge of any kind to watercourses or sewers will be permitted without the prior written consent of the appropriate authority and compliance with all their requirements;

(xii) Provision of all necessary measures, including suitable pumps, machinery and equipment for temporary works, to enable surface water runoff to be controlled in both dry weather and wet weather conditions, and prevent flooding;

(xiii) Plant and road controls to prevent silt pollution, including wash out facilities for concrete wagons with adequate pollution prevention measures. Regular inspections will be carried out to ensure access roads edges and pathways are swept and damped down to prevent contaminant transfer. Regular removal of dust and mud from Site roads, plants and vehicles;

(xiv) Clear labelling of tanks describing their contents. Prompt removal of empty containers from the Site with appropriate disposal;

(xv) Mixing and storage of cement in a contained area away from pathways, receptors and surface watercourses. Use of appropriate rapid setting concrete near drains and watercourses. Washing of concrete mixing equipment or lorries will be undertaken with cleaning equipment that uses a re-circulating system to avoid discharge of contaminated water;

(xvi) Provision and maintenance of spillage kits, typically containing oil-absorbent granules, floating booms, absorbent mats, polythene sheeting and polythene sacks, on Site with suitably trained persons appointed to deal with any spillages which may occur. Any spillage of diesel or petrol will be confined and removed as quickly as possible. All staff should receive spill procedure training at induction;

(xvii) Storage of spill kits should be stored in marked bag or wheelie bins in well signposted locations. Spill kits will be located adjacent to the fuel storage area, waste compound and fuel bowser. Buckets of sand, earth, straw bales or rags will also be provided for cleaning up small spillages; and

(xviii) Development of a contingency plan for the management of pollution incidents before construction commences.

7.11 Monitoring and Mitigation of Ecology Impacts

7.11.1 Species identified on the site which are listed on Schedule 9 of the wildlife and Countryside Act 1981 (as amended) will be managed appropriately. A method statement for the removal or long-term management/eradication of wall cotoneaster should be developed for the construction phase and retained post-development by the site operator.

7.11.2 The working area should be clearly demarcated with barrier fencing to avoid the encroachment of works, both vehicular and contractor, into sensitive semi-natural habitats adjacent to the development site. Root protection zones for retained trees within or immediately adjacent to the Site should be demarcated to ensure construction activities to not result in severance or damage of significant tree roots. No dig construction methods will be used near root zones of retained trees.

7.11.3 All site works should be carried out in accordance with best environmental working practices, such as those described by the Environment Agency or in CIRIA publications. The site induction and toolbox talks should be held with contractors to ensure they are fully aware of their responsibilities with respect to nature conservation issues, including the nature and location of key sensitive receptors and how the works could affect them.

Vegetation Clearance

7.11.4 The removal of trees and scrub vegetation capable of supporting breeding birds will, where possible, be undertaken outside the breeding bird season (March to August inclusive). If this is not possible, then all vegetation should be checked by a suitably qualified ecologist prior to removal to confirm the absence of breeding birds. In the event that breeding birds are present, the vegetation will need to remain in place with an exclusion zone around the nest until the young have fledged (the typical breeding season is between March and August, inclusive).

7.11.5 The removal of scrub and thick shrub vegetation capable of concealing a hedgehog nest should be undertaken in a staged manner, avoiding the breeding season between May and October where possible. Vegetation should be cleared in a phased approach, removing vegetation to approximately 150mm from the ground. This will allow for the identification of possible nests prior to clearance to the ground. In the event a nest is discovered, works should stop and further ecological advice sought.

7.11.6 In order to avoid causing wall cotoneaster to spread, a management plan will be developed detailing how the arisings from the removal of the bushes, and the brash, roots and soil will be controlled and either effectively managed on-site or transported off-site for disposal.

7.12 Townscape and Visual Amenity

7.12.1 The following measures will be incorporated to minimise townscape and visual effects:

(i) Tree protection measures for trees to be retained within and adjoining the site including no dig zones, protective fencing and construction exclusion zones;

(ii) The phasing of demolition from the inside of the site outwards so peripheral buildings protect existing residents for part of the demolition works;

(iii) The phasing of the construction so that the first phase of development will screen the construction of later phases from residents on Egerton Road;

(iv) Erection of solid hoardings to the site perimeter;

(v) Location of site offices outside the area designated as Metropolitan Open Land, i.e. not on the College playing fields on Craneford Way East, where possible; and

(vi) Location of site offices and storage to minimise the effects on adjacent residents.

7.13 Cultural Heritage

7.13.1 As detailed in the CEMP, further evaluation of the archaeological potential of the site may be required in order to define the nature of the archaeological resource and facilitate the production of a mitigation strategy intended to remove or reduce any potential environmental effects.

7.13.2 This will require discussion with Historic England during the determination period for the OPA. Potential mitigation measures will include excavation and recording of any significant archaeological deposits present or the implementation of an archaeological monitoring action (Watching Brief) during intrusive construction activities.

7.13.3 Subject to discussion with Historic England, a watching brief may required to be maintained during intrusive construction activities.

7.14 Socio-Economics

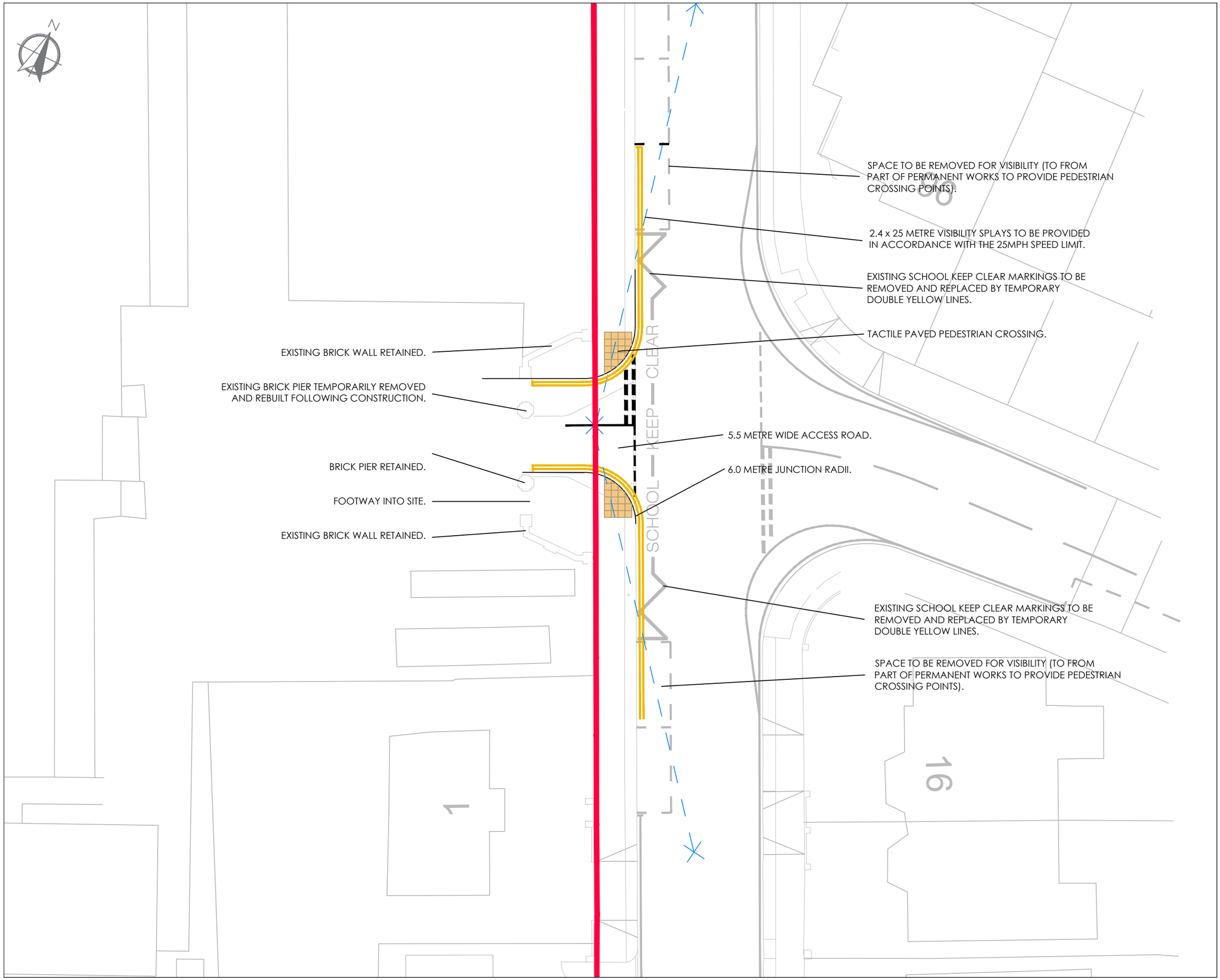
7.14.1 The development programme has been formulated to minimise disruption for on-site activities and users and for local residents through a number of measures.

7.14.2 The Outline scheme included a number of measures in addition to those detailed above which will minimise disruption from construction traffic and noise, the following additional measures will be considered when coordinating the works for the residential scheme. This includes the undertaking for external works outside of term time to ensure minimal disruption to the operations of the College and Schools.

7.14.3 Importantly, existing pedestrian routes and footpaths crossing will be maintained at all times during construction works.

7.14.4 Works on Langhorn Drive (to be undertaken by others) are to be undertaken in sections to enable access for Harlequin FC and College users. To minimise the effects on these users, works will take place during the summer period which is outside term time and during the rugby off season.

DRAWINGS



NOTES

This drawing has been prepared for the purpose of planning discussions and does not constitute a detailed design drawing, or construction drawing. A Design Hazard Inventory has been prepared by RGP setting out the hazards which have been designed out. This is available upon request.

SITE BOUNDARY

VISIBILITY SPLAYS

RESIDUAL HAZARDS

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

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

Rev.	Drawn	Comments	Date
P1	SJ	FIRST ISSUE	10/02/21

RGP
Transport Planning and Infrastructure Design Consultants
Shackleford Suite, Mill Pool House, Mill Lane, Godalming, GU7 1EY
1 Fellmongers Path, London Bridge, London SE1 3LY
Tel: 01483 861681 / 020 7078 9662 www.rgp.co.uk

Client: Clarion Housing Group

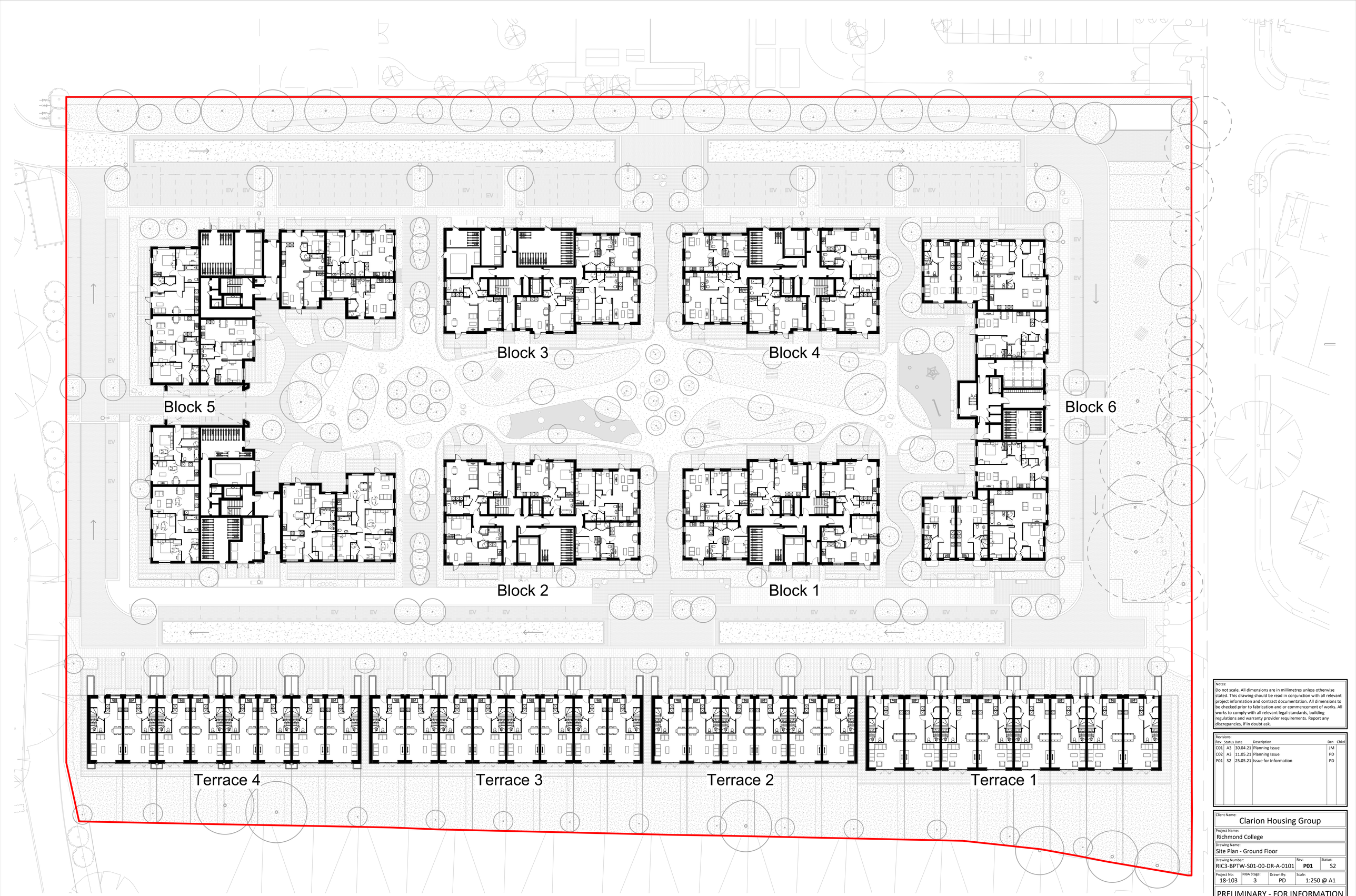
Project: Richmond College Residential Development Zone

Drawing Title: Temporary Resident Vehicle Access during Construction

Drawing No.	Rev.
2020/5453/004	P1

Scale	Drawn By	Checked By	
1:250	SJ	NR	A3

APPENDIX A



Notes:
Do not scale. All dimensions are in millimetres unless otherwise stated. This drawing should be read in conjunction with all relevant project information and contract documentation. All dimensions to be checked prior to fabrication and or commencement of works. All works to comply with all relevant legal standards, building regulations and warranty provider requirements. Report any discrepancies, if in doubt ask.

Revisions:

Rev	Status	Date	Description	Drn	Chkd
C01	A3	30.04.21	Planning Issue	JM	
C02	A3	11.05.21	Planning Issue	PD	
P01	S2	25.05.21	Issue for Information	PD	

Client Name: Clarion Housing Group

Project Name: Richmond College

Drawing Name: Site Plan - Ground Floor

Drawing Number: RIC3-BPTW-S01-00-DR-A-0101 | Rev: **P01** | Status: S2

Project No:	RIBA Stage:	Drawn By:	Scale:
18-103	3	PD	1:250 @ A1

PRELIMINARY - FOR INFORMATION

40 Norman Road,
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SE10 9QX

t. 020 8293 5175
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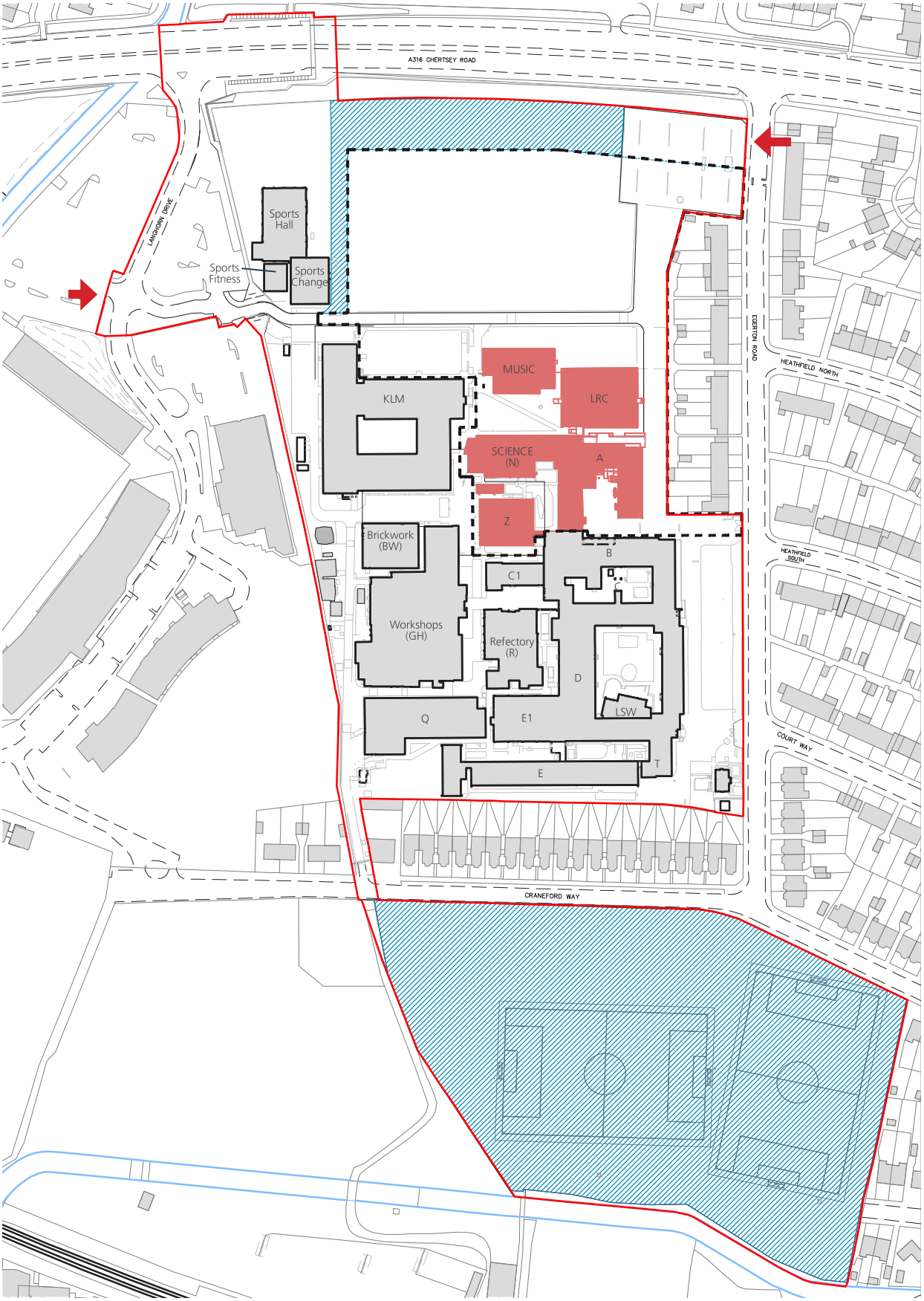
APPENDIX B



ENABLING WORKS

PHASE 1a

Existing rooms to be taken out of use for Decant

PHASE 1b

Existing rooms to be refurbished to accommodate new curriculum

Line out 2nr pitches to playing fields

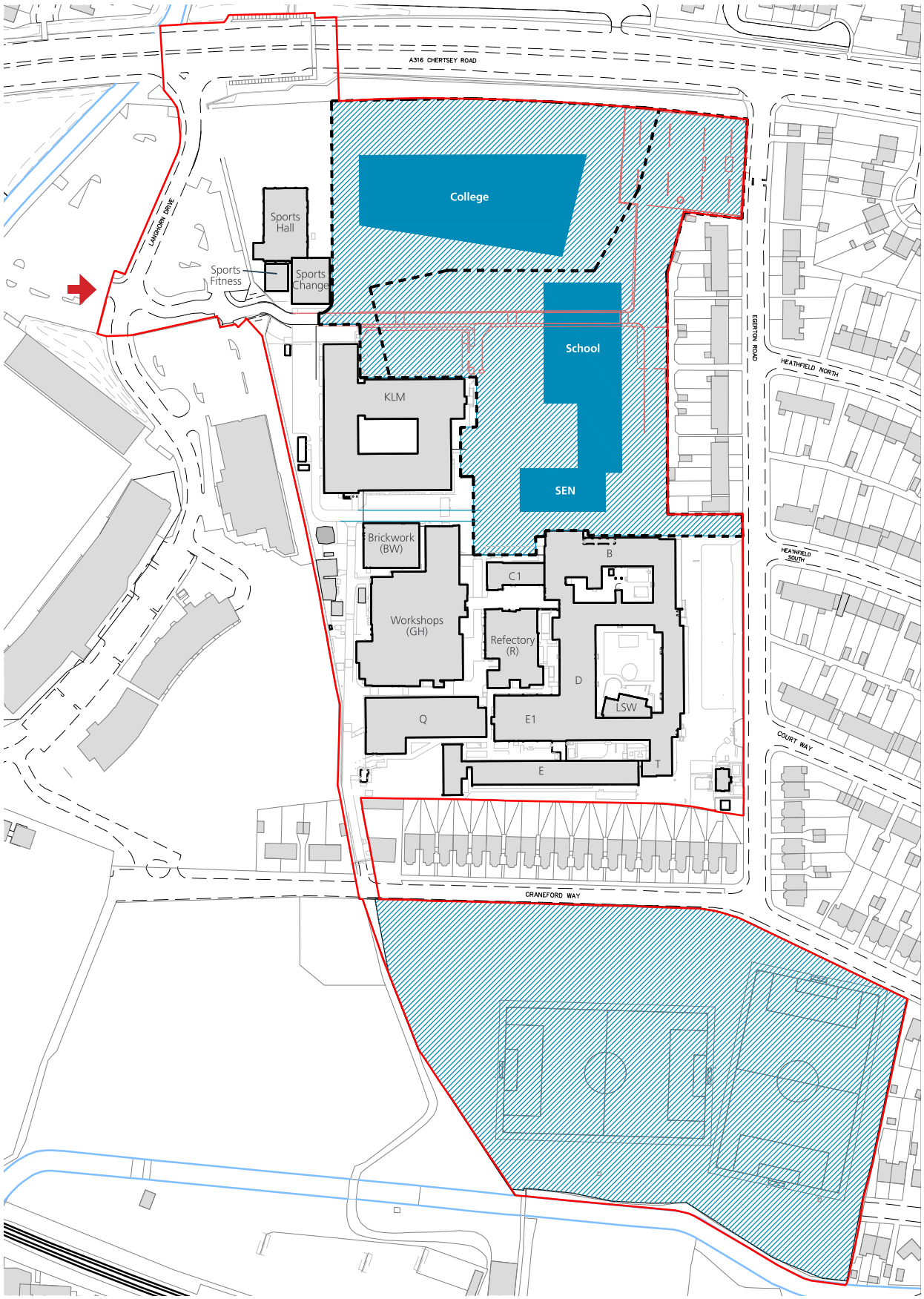
College move into decant area

Creation of haul road & preparation of access off Langhorn Drive and Egerton Road

Demolition of existing buildings (Music, LRC, Science and A block (part) and Z block)

Weatherproofing to the end of open end of Block A

- Existing Buildings
- Buildings to be Demolished
- Buildings under Construction
- New Buildings
- Construction Area
- Construction Hoarding
- Construction Vehicle Access



PHASE 1c

Construction of College main building

Construction of Secondary School and Special School

Removal of hardstanding and seeding to playing fields

- Existing Buildings
- Buildings to be Demolished
- Buildings under Construction
- New Buildings
- Construction Area
- Construction Hoarding
- Construction Vehicle Access