CONSTRUCTION METHOD STATEMENT

FOR

Harris Primary Academy East Dulwich

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AMENDMENT (Section No.)	DESCRIPTION OF CHANGE	CHANGED BY	DATE
	Draft issue	Glenn Gilmore	1/12/14
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1.0 PROJECT PARTICULARS

1.1 PROJECT LOCATION

The proposed site is located in East Dulwich in the London Borough of Southwark. The property is situated on a triple aspect site fronting Lordship Lane to the west, Whateley Road to the north and Landcroft Road to the east. The site is currently occupied by a vacant police station. The existing building on the site will be demolished.

1.2 PROJECT DESCRIPTION

The project involves the construction of a new 2FE Primary Academy on behalf of the Harris Federation. The new school will be of concrete frame construction with primarily insulated render and punch windows.

The school building will be located fronting onto Lordship Lane, on the western part of the site. The main school reception will be accessed from Lordship Lane. There will be two further access points to the school from Whateley Road and Landcroft Road.

The building is proposed over four storeys, similar in scale and massing to the existing building on the site. On the ground floor is the administrative area, school hall, kitchen and classrooms for the reception year group. Also accessible from this level is the play space to the rear of the site.

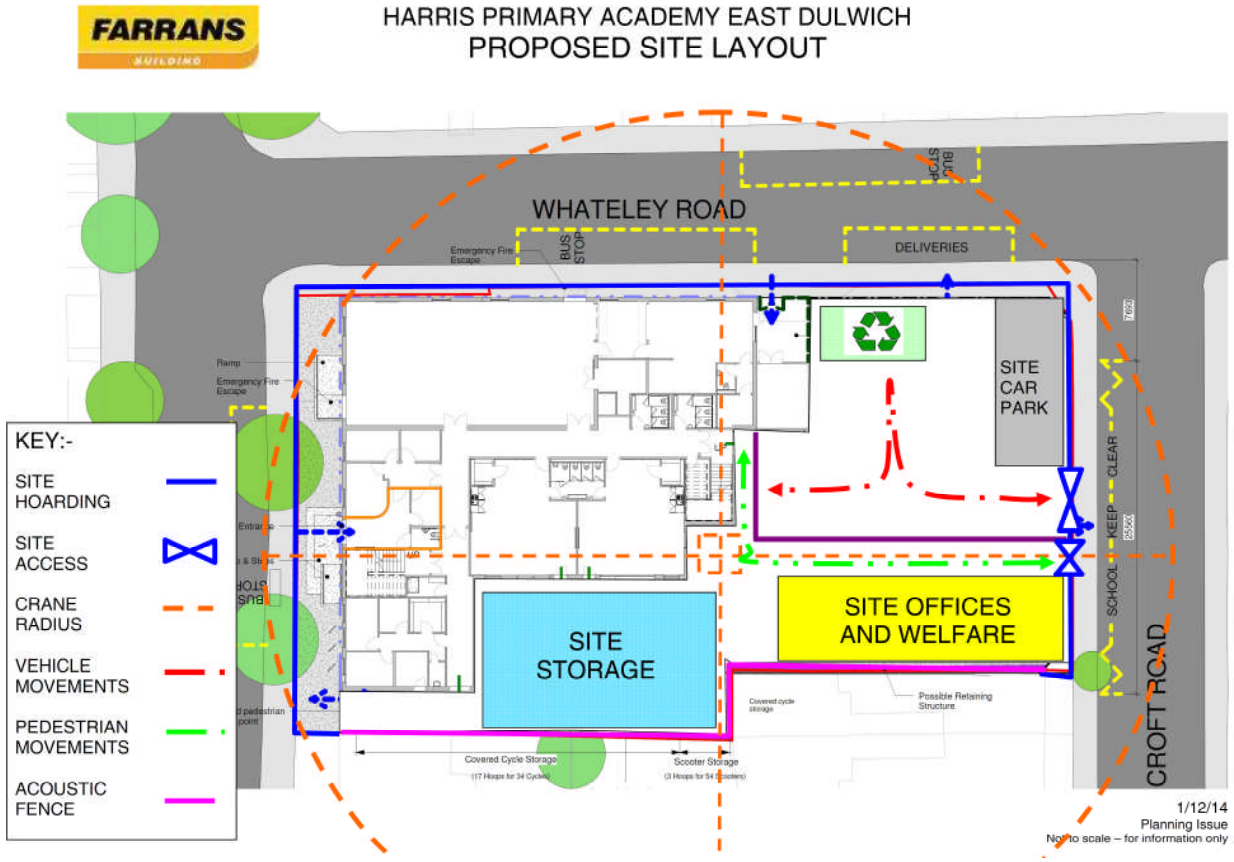
1.3 PROJECT TIMESCALE

Commencement: April 2015

Completion: April 2016

Duration: 48 weeks

2.0 SITE ESTABLISHMENT



2.1 SITE BOUNDARIES

On possession of site, a secure, solid perimeter hoarding will be erected around the complete perimeter of the site prior to actual site works commencing. During this period a Demolition Survey and report will be undertaken allowing notice to be given to HSE confirming the timetable and quantities for the asbestos removal. The secure perimeter hoarding will ensure that the site is kept totally separate from all other properties and public thoroughfares.

In order to protect members of the public during the demolition and construction works, a pedestrian tunnel will need to be constructed along the northern boundary of site, due to the close proximity of the building to the public boundary. This will need to take into consideration of the bus stop on Whately Road.

The hoarding along Lordship Lane will also be erected on the public footpath, however there is sufficient space between the proposed hoarding line and new build not to need a pedestrian tunnel along this elevation.

Licence applications will be made to Southwark Highways well in advance of any hoardings erected on the public footpath.

Scaffold fans will also be used to protect members of the public, in locations where perimeter scaffolds are close to the external boundary.

Farrans will employ a strict regime for boundary management and daily inspection. Site vehicle access gates will be shut at all times and will only be opened to allow authorised vehicle movements to take place. Pedestrian access to the site will be provided at a separate entrance to that of vehicles.

The boundary will be inspected daily by Site Management on a daily basis to ensure it's integrity and quality of appearance and any deficiencies identified will be immediately dealt with.

2.2 ACCESS & EGRESS

The management offices will be established to the south east corner of the site in a prominent position clearly visible to incoming traffic. Contractor's car parking for construction staff and visitors will be provided to the north east corner of the site

Due to the location of the bus stops and loading bay on Whately Road, construction traffic will arrive to the site via the main vehicular access off Landcroft Road, to the east of the site. Access gates will be established in the same location as the previous entrance gates to the Police Station, with clear visibility splays in both directions and traffic/directional signage for the site will be agreed with Southwark Highways. A traffic marshall will be utilised to co-ordinate deliveries and pedestrian movement across the site entrance.

A single designated pedestrian access gate will be provided adjacent to the site offices and clearly segregated from vehicular routes. The pedestrian gate will be access controlled by security staff to manage and log access of visitors and operatives on and off the site.

Crushed and screened concrete/rubble from the demolition works will be used to form hardstanding areas around the site. This will maximise on recycling of

existing materials, reduce import haulage requirements, reduce land fill and provide an efficient sustainable solution.

2.3 DELIVERY & TRAFFIC MANAGEMENT

To reduce the impact of site parking and deliveries we will be:

- Develop a traffic management plan to establish clear routes for vehicle movements supported with prominent way-finding signage.
- All major deliveries will be managed and co-ordinated by key members of our site team. Weekly Delivery Schedules will be agreed with Supply Chain to ensure main routes do not become congested with 'waiting' vehicles. The delivery schedules will take account of peak traffic times on and around the site.
- A traffic marshall will control the movement of lorries in and around the site

We will actively encourage shared travel arrangements/use of public transport to minimise the number of vehicles travelling to site by introducing constraints in package tender documents and reinforcing at Supply Chain pre-start meetings and H&S inductions.

2.4 UNLOADING/DISTRIBUTION, STORAGE & CRANAGE

Designated loading zones will be established within the site area for dealing with deliveries. These zones will include a holding area for short term containment of goods to facilitate effective offloading and movement of delivery vehicles on / off the site.

Following acceptance of a delivery and as required by programme and site progress, materials will be distributed from the holding area to the site storage area or relevant location on site. Materials handling and hoisting on site will be mainly carried out by rough terrain telescopic forklift and by a luffing crane. Concrete pumps will be employed to place concrete for foundations and floor slabs.

It is our intention to adopt a 'just in time' approach for materials through effective planning, thus minimising storage space required. A designated storage area will be established for a limited amount of materials. This will be strictly managed to control content. A member of the site team will be designated as an appointed person responsible for the management and co-ordination of key vehicle movements and lift operations. They will also be responsible for ensuring that all plant and equipment is operated within current health and safety guidelines.

2.5 WASTE MANAGEMENT

Maintaining a high standard of site cleanliness is essential to allow works to progress on site in an effective and a safe manner. Our approach to site cleanliness will be to make supply chain responsible, through site constraints issued as part of enquiries and orders.

In addition to this we will have a multi task labour force directly employed whose core activity will be to police site cleanliness and to coordinate the removal of waste containers filled by the supply chain contractors. A designated Waste Management Compound will be set up within the site. This will allow for the segregation of waste in separate skips including:

- Specialist Waste (e.g. oil drums, paint tins, spray cans etc)
- Waste timber for recycling
- Waste metal for recycling
- Gypsum based products (e.g.plasterboard)
- General waste (covered with waste transfer notes)

2.6 TEMPORARY SERVICES

Farrans M&E Co-ordinator will be responsible for the design, installation and periodical testing of temporary services and electrical equipment.

General power on site will be 110v and will be distributed via transformers located at central locations around the site. Our partnering M&E Contractor Dowds Group will install the temporary supplies and lighting ensuring they are available on site to carry out maintenance and planned changes to the layout.

General safety lighting will be provided through all circulation areas reinforced with specific mobile task lighting being employed taking account of specific operations as the building close in.

The site will generally be covered with security lighting that will be of a low energy nature and be controlled via photo cells to ensure that it is only lit during hours of darkness. Lighting will be sited such that it does not increase light pollution to the neighbouring areas.

All temporary services will have identified isolation points to enable (1) quick and effective isolation in case of an emergency and (2) efficient management of energy

usage. Meters will be installed as applicable to facilitate monitoring of energy usage.

2.7 FIRE PREVENTION & EMERGENCY PROCEDURES

Emergency procedures will be developed and agreed in the construction phase health and safety plan. These procedures will include an emergency contact notice list details of all relevant authorities and services will be displayed on site.

The project manager will be responsible for establishing a Fire Safety plan which will be updated as required during the construction process.

Designated fire 'call points' will be established around the site in strategic locations supported with an evacuation plan and directional signage identifying the escape routes and muster point.

Fire wardens will be appointed from within the Construction Management Team and regular Fire Drills will be carried out as the project progresses to ensure the evacuation strategy put in place is up to date and effective.

2.8 SITE SECURITY

Security on site during the Construction Phase will be provided at the site entrance at all times while the site is operational.

In addition to manning the security office at the site access the security staff will also be responsible for:

- Delivering site safety inductions for visitors to the site
- Recording vehicle movements on and off site
- Checking deliveries against the delivery schedule
- Validating deliveries that have not been notified with Site Staff
- Ensuring operatives/staff and visitors are equipped with PPE on entry
- Liaison with Security/Emergency Services

Site lighting will be provided across the site as required and will be varied in design according to where the service is required and to ensure that light pollution is not suffered above and beyond current levels to the project neighbours.

Where continuous site lighting is required will be of a low energy nature and will remain lit throughout the hours of darkness (Photocell Controlled). Areas of this

nature will include adjacent to the security office, around the main office accommodation and storage. As the project progresses the building will also be illuminated in this manner internally and externally.

Areas such as container storage will be externally lit with fittings that controlled by photocells and movement detectors which will therefore only be illuminated when it is dark and there is activity in the immediate area.

Intruder alarms will be fitted to the main Site Office accommodation and to the Security Office. The system will be linked directly our 24 hour Helpdesk. The need for further alarms in secure containers and/or in the building as it progresses will be risk assessed on an on-going basis.

Pedestrian Access to the site will be controlled by site security staff.

In addition to the measures described above we will take a proactive approach to Crime Prevention and will engage with the local Police Crime Prevention Officer to put in place measures and procedure to reduce the possible incidence of crime that could be associated with the site.

Measures commonly used by the police in this respect include

- Publicity, involving the media, posters, leaflets, Police publications
- Exhibitions, group talks
- Security surveys, strategies provided to individuals, industry and commerce, tailored to their specific needs

We will augment any assistance extended to us by the Police by incorporating information into the site safety induction that will provide practical guidance to site staff and operatives on good security practice, e.g:-

- Lock up all tools when you not using them.
- To discourage theft, permanently mark company/personal property for quick visual identification
- Remove ignition keys from all unattended plant.
- Immobilise all plant when not in use
- Whenever possible, park vehicles off the road
- Return all keys to the Site Manager or whoever is responsible for the keys.
- If you have been given a security pass - wear it!
- Report any thefts or suspicious behaviour -immediately to the Site Manager
- Order the minimum amount of materials needed and, as with any deliveries, make sure that there is someone trustworthy on site to accept them

- When ordering plant from hire companies make sure that there will be a responsible person on-site to accept delivery

These security measures will be discussed fully with supply chain management at tender and pre-contract meetings and will be explained to operatives during Site Induction to ensure they understand their responsibilities on the site and perform to the required standards.

2.8 NOISE & DUST PREVENTION

Having considered the issue of Noise Pollution on the Harris East Project Academy project, we have identified the main sources of noise on the project as:

- Demolition works
- Groundworks
- Site Vehicles and Site Plant operating on the site

The measures we will take to reduce noise pollution will be as follows:

- We will work closely and cooperate fully in terms of working in normal site hours, as set out by London Borough of Southwark.
- Well maintained, sound attenuated plant will be used to carry out all operations reducing plant noise to acceptable levels
- Solid hoarding will be used along the boundary to the residential properties. This will reflect sound back into the site to a significant extent. This will be supplemented local to machinery with movable sound reflecting/absorbing barriers.
- The permanent acoustic boundary treatment required to the south of the site will be installed as early in the project as possible
- Works above hoarding level, e.g. roof demolition will be executed using manual deconstruction methods which will also allow recovery and segregation of materials.
- Crushing of recovered concrete/masonry materials will be carried out, as far as possible from adjacent properties.

Noise arising from Site Vehicles and plant will be managed first of all by rigorously implementing the site hours. Before commencing works on site Farrans will agree the acceptable operating times for the site.

Careful selection of plant and vehicles is essential. All plant used on the Shortlands site will be sound attanuated and will be regularly serviced/maintained to ensure it is operating correctly. The site induction for plant operators will cover the issue of noise specifically and they will be warned against over revving of plant and the operation of horns in all but necessary situations. Machine operatives will

be advised to isolate plant/ equipment during idle periods reducing not only noise levels but encouraging efficient running of equipment and reduced fumes.

In terms of misbehaviour of operatives and staff on the site this will be guarded against by strict rules being out in place that will form part of Supply Chain method statements and will be covered in site induction and tool box talks. Any operative found in contravention of the required standards will be warned for a first offence and removed from the site should there be a re-occurrence.

In relation to dust, demolition is again likely to be the main source of disruption.

During the demolition works, a sheeted scaffold will be erected around the perimeter of the existing buildings, which will contain any dust arisings from the demolition activities. Water spraying techniques will be utilised to suppress dust on the construction/working side during the demolition.

Apart from demolition activities dust is likely to present a problem during long dry spells and in these periods damping down across the site will be employed to avoid windborne dust crossing the site boundary and causing inconvenience.

With regard to the risk of mud being spread to adjacent highways, Farrans will maintain wheel washing facilities on site and carefully maintain clean hardstandings across the site to ensure the surrounding highways remain in a clean acceptable condition and are not impacted on by our work.

All the measures mentioned above and others will be captured and monitored in our proposals under the Considerate Contractors scheme.

As part of the CCS requirement and in line with our Company Policy, we will put in place a complaints procedure which will include 24/7 contact details for the Site Management Team, a logging system for complaints and a process for remedial action to be identified and implemented.

3.0 CONSTRUCTION METHODOLOGY

3.1 DEMOLITION

Following the initial Site Establishment, all loose fixtures and fittings will be removed from the building and the existing building services will be traced back to source and isolated as required. On completion of the demolition report, the HSE will be notified of our intention to carry out any necessary asbestos removal. On completion of the two week notification period and on receipt approval from HSE to proceed, asbestos removal will be undertaken by a licensed Demolition Specialist. All asbestos material will be disposed of in accordance with current legislation. Air clearance certification will be produced on a progressive basis prior to commencement of demolition.

As areas are released for demolition soft strip will take place firstly with materials being segregated for recycling as applicable.

Due to the location of the existing building directly on the boundary with the public footpath, a sheeted scaffold will be erected around the perimeter of the building which interfaces with the public boundary or adjacent properties.

The building design, allows for the retention of the basement retaining wall of the existing building along Lordship Lane and Whately Road. Prior to demolition, temporary shoring will be installed along the length of the retaining wall, so that the ground floor slab can be demolished, as this slab is acting as a prop to the retaining wall. Once the ground floor slab is demolished, the basement void will be backfilled with crushed material to form a suitablke platform for piling.

Once the scaffold and shoring has been erected, the existing building will be de-constructed, so to prevent structural collapse, using long-reach demolition machinery. Demolition will be progressed from the internal courtyard face of the building, towards the external faces on the boundaries.

Demolition arisings will be crushed on site crushed on site for re-use, in line with WRAP requirements, and other materials being recovered for re-use/recycling.

Concurrent with this activity the external areas of the site will be thoroughly surveyed for existing services and drainage and isolation and diversions will be carried out to allow the new building footprint to be established for progression of following trades.

The demolition will include grubbing up of existing hardstandings and of foundations leaving the site ready for civils work to progress on progressive completion.

3.2 CIVIL WORKS

The civil works will largely involve the excavations of the site to formation level. Formation levels will be established by utilising fill from the stockpile of crushed/excavated material in order to create a piling mat for the foundations.

3.3 SUBSTRUCTURES

Due to the ground conditions of the site, bored pile foundations are required to form the foundations of the building. In advance of these works taking place. External surveys will be completed on the adjacent properties and vibration monitoring will be used when working in close proximity to the properties.

Once piling is complete, the Ground slab will be formed, in coordination with underslab services and drainage.

Drainage and Services connections outside the site will be made at as early a point in the programme as possible and Farrans will liaise with the local authorities and statutory bodies to ensure that relevant permits are in place and that connections are completed in line with our programme requirements.

3.4 SUPERSTRUCTURES

When the substructures are suitably advanced the construction of the reinforced concrete frame will commence. Early focus will be applied to the stair cores to release these earlier to provide safe access to upper levels.

Columns will be formed concurrently and in coordination with the shear walls allowing the first floor slab to be formed. As the first floor slab is formed and cured columns and walls to roof slab level will be formed and in turn the upstands at roof level will be completed.

Throughout the construction of the concrete frame a member of the site team will be designated as the temporary works co-ordinator responsible for managing the design and construction of all temporary works elements e.g. formwork/ falsework, scaffolding. A permit system will be implemented aimed at ensuring thorough checks are carried out throughout the construction of the concrete frame i.e. permit to pour, permit to strike, permit to remove backpropping.

A luffing type tower crane will be erected on site at this stage, to assist with the material distribution during the concrete frame construction.

3.5 BUILDING ENVELOPE

As the superstructure and the floor slabs are completed on a section by section basis the trades associated with the completion of the building envelope will follow.

External insulated render, installation of doors and windows, and external doors will be coordinated with the installation of the roof structure and coverings to ensure that overhead working is avoided and that a weather tight structure is achieved in a timely manner with no adverse impact on health and safety standards, or programme.

3.6 SERVICES INSTALLATION

A designated M&E co-ordinator will be responsible for managing the design and installation of building services.

Natural ventilation will be utilised for the teaching spaces and energy efficiency targets will be met by roof-mounted PV cells and air source heat pumps.

The services installation will generally follow the works sequence as outlined above, such that services can be installed, tested and commissioned for September 2015 Intake.

Consideration will be given to Acoustics, Air Sealing & Fire compartmentation with QA procedures put in place to ensure services do not compromise these requirements.

The M&E co-ordinator will be responsible for adopting and managing a sign-off process aimed at indentifying and dealing with defects throughout the construction period. This process will commence at the first fix stage with a permit system being operated to log inspections and sign off to allow next stage of works to progress.

The process outlined above not only serves the construction process but also provide a early compliance check in regards to design. Throughout this process we engage closely with the Employer's Requirements to ensure they are fully involved and informed on works progress and quality standards.

3.7 INTERNAL FIT-OUT

The internal fit-out will commence as soon as sections of the building are made watertight. Wet trades such as floor screeds, and plastering will be completed at the earliest opportunity to take account of drying out periods in readiness for applied finishes.

Maintaining the phased sequence outlined previously the fit-out will progress through 5 key phases as follows:

First Fix

Co-ordinated closely with the Mechanical and Electrical installation the first fix stage of the fit out will mainly be focused around installing floor screed and constructing partition walls (boarded one side).

Thorough check procedures will be implemented to ensure that the required quality levels are achieved. Any defects identified will be logged and tracked to ensure they have been rectified prior to advancing to the next stage.

As the first fix elements are completed we will implement our 'permit to close' system. This system will operate on a room by room basis with detailed checking of installations against construction issue drawings and specifications. Although driven by the M&E co-ordinator input will be necessary from the package managers and the independent tester to ensure that any anomalies are identified and dealt with.

When all parties are satisfied that the first fix element is complete the permits will be signed off to provide clearance to progress to the next stage.

Second Fix

Maintaining strong links with the Mechanical and Electrical installation teams the second fix stage will pre-dominantly entail completion of partition walls, firestopping, installation of ceilings, plastering, first fix joinery, and general preparations for applied finishes.

The aim will be to activate the building heating systems as early as possible during this stage of the works to assist with drying out create a suitable environment for the final finishing stages.

The permit system will again be implemented to ensure that checks are completed in areas that are to be closed with only maintenance access remaining i.e. ceilings. Our continuous snagging process will become more focussed on the standard of finish and ensuring areas are suitably prepared for applied finishes.

Finishes

At this stage the M&E installations will be substantially complete and progressing into the pre-commissioning stage.

This stage of the works will be focussed on 2nd fix joinery e.g. doorsets, fitted furniture, wall protection, wall and floor finishes. Having activated the building heating systems during the previous stage the aim will be to maintain a consistent environment to allow natural materials to acclimatise and avoid stressing due to sudden changes.

The snagging process during this phase will become very focussed on the standards of finishes and quality of workmanship in driving towards a defect free

facility. Where possible a lock down procedure will be implemented to minimise and control access through permits to substantially completed areas.

During this stage of the project the aim is to complete the construction works and achieve a 'dust free' environment to enable us to move into the final testing and commissioning of the building services.

Snagging/ De-snagging

This stage of the process will run parallel with the testing and commissioning process. A final detailed snagging procedure will be implemented in conjunction with the independent Inspector.

Utilising a 'snagging database' all snags identified will be logged and action lists issued to relevant sub-contractors with programmes allocated for completion of snagging.

The snagging works will be inspected and signed off with the database being updated regularly until all items are closed out.

At the appropriate stage a final builders clean will be carried out to prepare the building for completion.

Testing & Commissioning

The commissioning of the new facility will be carried out in 4 distinct phases and all individual activities within these phases will be fully detailed on the commissioning programme prior to the commencement of the commissioning exercise. The four phases of commissioning are as follows:

- **Pre-Commissioning** – After all services have been installed the individual systems will be energised to ensure all component parts are working and that no faulty piece of equipment, needs replaced. In addition to checking that all equipment is working checks will be made to ensure that the items of plant are capable of achieving the outputs as specified. Each service will be 'signed off' as having passed each stage of the commissioning process.

- **Main Commissioning** – This will only be done after the main construction activities have been completed and the building has had a good standard of builders clean so that dust etc. has been removed from the building. Each service, in turn, will be run at all operational levels as specified in the output specification. This will include the need

to accommodate the various conditions, not only variable daily conditions but also seasonal variations. When individual systems have been checked it will be necessary to run all systems simultaneously to ensure that the operation of one system does not affect the correct operation of another system.

- **Witness Testing** – After FHJV and Dowds Group have satisfied ourselves that all systems are functioning as intended a series of demonstration tests will be arranged with relevant individuals and / or organisations in attendance. Those in attendance are likely to include ARUP Engineers, Fire Officer, Building Control (Assent BC), and Robertson FM/MCT Estates Staff (if deemed applicable).

- **Client demonstrations & Operational Training** – This important stage will be timetabled and the scope proposed to ensure the correct personnel are available and the level at which the training is given is relevant and worthwhile.

3.8 EXTERNAL WORKS

The enclosed external play areas can only be started once the external scaffolds around the perimeter of the building have been dismantled. In order to maintain as much space as possible on site, the majority of the utility connections and site drainage will be completed during the initial civil works package.

Around the perimeter of the building the hard landscaping works will follow the dismantling of the external access scaffolds.

During the last weeks of the contract, the site office accommodation will be re-located to a suitable location to facilitate the completion of the carparking / hard landscaping. Following handover of the building all site accommodation will be removed and the areas used for this purpose will be cleaned, inspected and accepted along with the rest of the building.