

Construction Environmental Management Plan (CEMP)



Broadwater Farm Regeneration Scheme Project No: G717

Construction Environmental Management Plan (CEMP)

Contents

1.0	Introduction	4
1.1	Project Overview	4
2.0	Programme Milestone	8
2.1	Table 1 Key Milestone Dates Example	8
3.0	Site Logistics & Deliveries Plans.....	10
3.1	Site Accommodation & Welfare Facilities.....	10
3.2	Site Access & Security for residents and operatives.....	11
3.3	Material Movement.....	11
3.4	Access Arrangements for Vehicles	12
3.5	Vehicle Delivery Requirements.....	13
3.6	Vehicle Size and Frequency	15
3.7	Hours of Operation	16
3.8	Vehicle Arrival and Loading Arrangements.....	16
3.9	Parking Strategy	17
3.10	Temporary Road Closure.....	17
3.11	Pedestrian and Cyclist Safety.....	18
3.12	Site Logistics Plan	18
	PART A: PLANNING AND PROCEDURES	19
1.0	ENVIRONMENTAL PLANNING & ECOLOGY	19
1.1	ENVIRONMENTAL PLANNING GOVERNANCE	19
1.2	REVISION RECORD	20
2.0	PROJECT DETAILS & DESCRIPTION	21
4.0	Management Structure and Responsibilities.....	26
4.1	Management Meeting overview	27
5.0	Environmental Mitigation	28
5.1	Noise Control	28
5.2	Vibration	31
5.3	Dust & Air Quality	32
5.4	Air Quality - Smoke, Fumes; Odour & CO2 Emission Monitoring	33
5.5	Waste Management.....	37
5.6	Pest Control	38
5.7	Drainage.....	38
5.8	Emergency Plan	39

Construction Environmental Management Plan (CEMP)

6.0 Pre-Construction Programme	39
6.1 Procurement Strategy.....	40
6.2 Programme Overview	40
7.0 Liaison with Local Neighbourhood	41
8.0 Enabling works.....	42
8.1 Hoarding	42
8.2 Survey, Testing & Ecology	43
8.3 Site Welfare	44
8.4 Demolition	45
8.5 Existing Carparks	46
9.0 Sub-Structure works	46
9.1 Excavation	46
9.3 Load Bearing Piling Works	46
9.4 Pile Caps & Beams	47
9.5 Drainage.....	47
9.6 Basement Slab and Ground Floor Slab	47
10. Super Structure works	48
10.1 Tower Crane	48
11.1 RC Frame.....	50
11.2 In-Situ Construction	50
11.3 Prefabricated Stair Construction.....	50
11.4 Façade.....	51
11.5 Roof	51
12.0 Internal Works/Fit-Out Works.....	51
12.1 First Fix.	51
12.2 Second Fix.	52
12.3 Final Fix.....	52
12.4 Key Stage Sign Offs	52
12.5 Testing & Commissioning	52
12.6 Externals	53
12.7 Practical Completion & Handover	53

Construction Environmental Management Plan (CEMP)

1.0 Introduction

This Construction Environmental Management Plan CEMP provides information on Environmental Management and details on outline Construction Methods for the Broadwater Farm Regeneration Scheme. This CEMP has been prepared for the Planning Authority and statutory consultees and outlines the proposed environmental management methodology to be employed during the construction of the Broadwater Farm Regeneration Scheme, if consented.

The principal objective of this CEMP is to provide information on the proposed infrastructure and information on how Willmott Dixon (the Contractor) intend to avoid (where possible), minimise and control adverse environmental impacts associated with the development. Furthermore, this document aims to define good practice as well as specific actions to be implemented following receipt of a planning consent.

The CEMP sets out the methods and procedures that will be adopted with consideration to minimise the impact of the development on the local community and residents, businesses, the general public and environment. It will address the potential environmental impact of the construction and the methods to mitigate the specific environmental disturbances such as noise, vibration, dust and plant emissions.

1.1 Project Overview

The proposal is for the regeneration of the existing Broadwater Farm Regeneration Scheme with the demolition of several existing housing stock buildings and includes the sites of the Tangmere and Northolt Blocks (including Stapleford North Wing); Energy Centre; Medical Centre; Enterprise Centre; and former Moselle school site. The regeneration is for the project to create new housing structures which deliver social homes for rent, to provide the Enterprise, Medical and Energy Centres and to provide new commercial units. It will also deliver associated public realm and open space areas, including the reprovion of the Memorial Gardens.

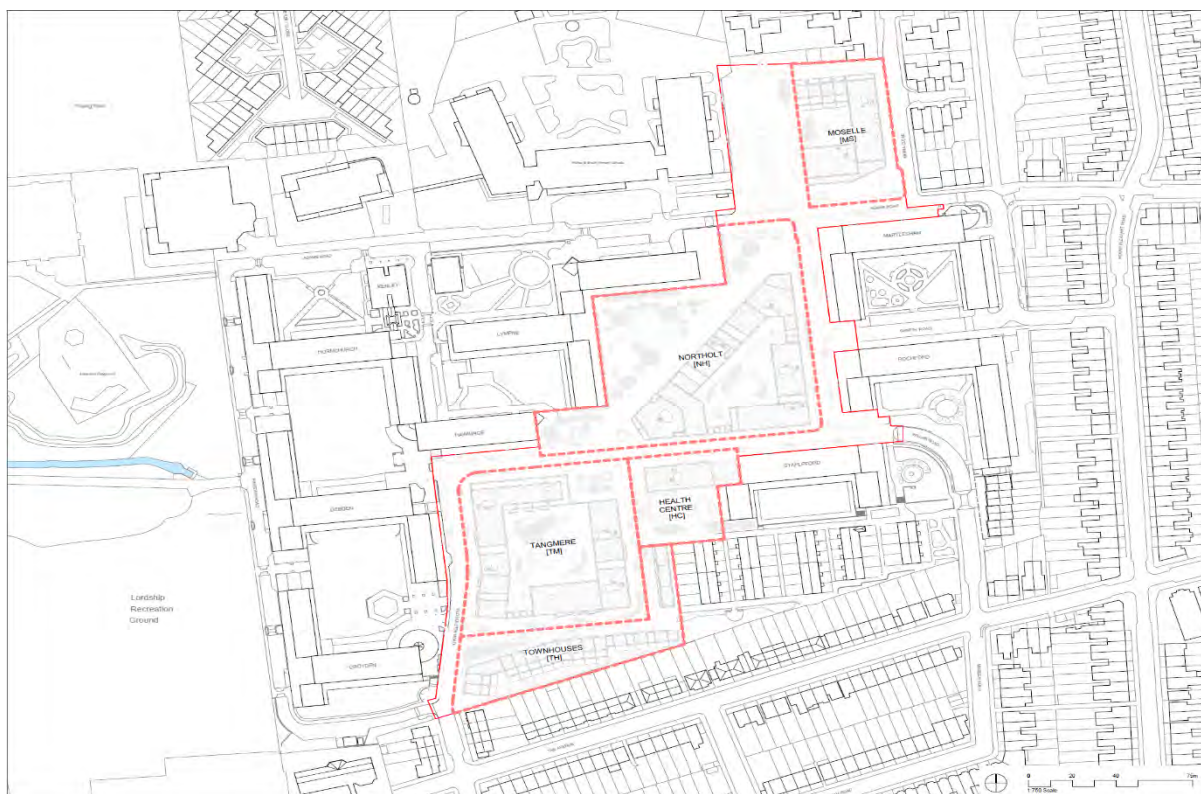
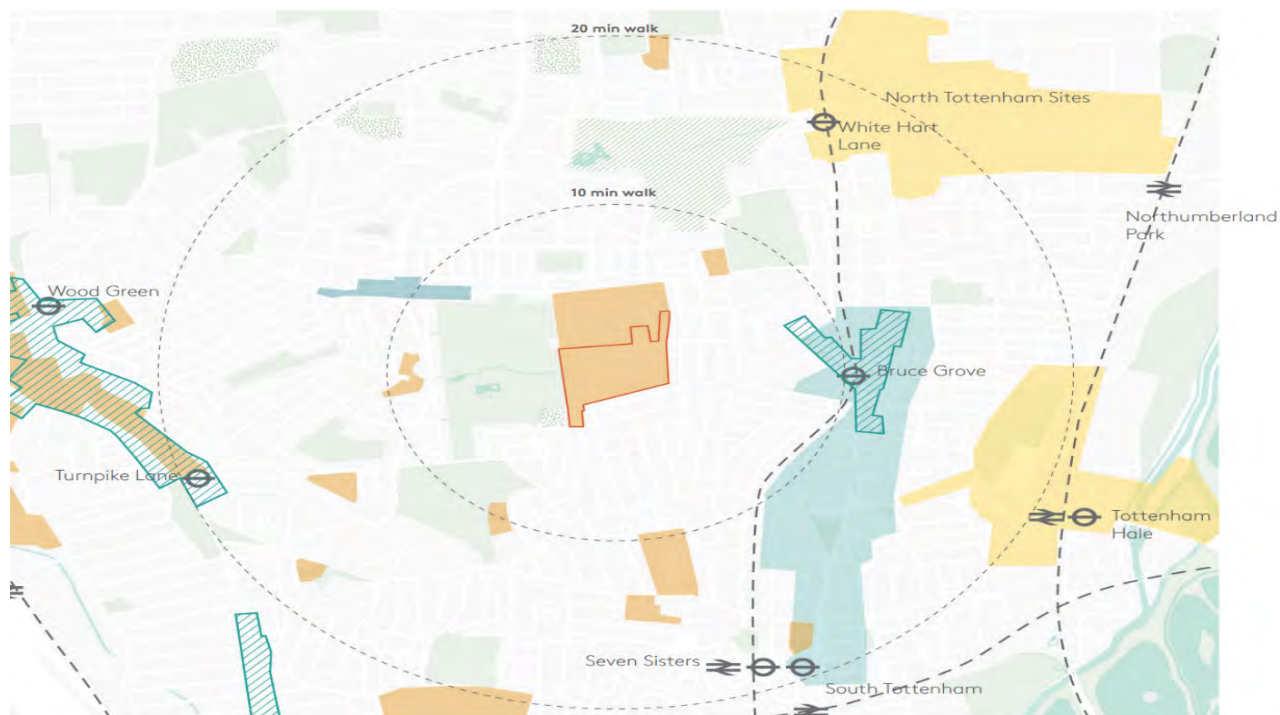
Construction Environmental Management Plan (CEMP)

The development will broadly consist of the following:

1. Disconnection of existing services back to their respective site boundaries.
2. Install protective measures for existing trees (where applicable)
3. Removal of asbestos and demolition of existing buildings.
4. Bulk excavation to enable substructure piling.
5. Construction of the new substructure including CFA piled foundations.
6. Construction of the new building structures consisting of:
 - Concrete frames
 - SFS
 - Brick Facades
 - Metal windows & doors
 - Internal walkways & balconies
 - Drylined internal walls
7. The fitting out of the new buildings and installation of new permanent service supplies including the provision of various new substations and energy centre.
8. Installation of new Green roofing and sustainable energy systems (PV etc)
9. Construction of new external landscaping works and public realm improvements

The site location is shown on the diagram below. The site red line boundary is approximately 3.5 ha in area

Construction Environmental Management Plan (CEMP)



Construction Environmental Management Plan (CEMP)

The overall scheme within the construction phase has been designated across four individual phases with a degree of concurrence across phases 1, 2 & 3, with phase 4 commencing on the completion of the previous.



Construction Environmental Management Plan (CEMP)

2.0 Programme Milestone

The project is currently divided into four separate phased construction periods that vary in overall length dependant of that individual phase. Below is an example of a summary table detailing those activities that typically are key milestone over the construction period. There are many other critical activities but the items below are the dominant activities critical to the completion of the project.

2.1 Table 1 Key Milestone Dates Example

KEY MILESTONE DATES	
Start on Site	
Demolition Complete	Week
Phase 1 Enabling works	Week
Phase 2 Main works commence	Week
Main Contract commences	Week
Piling Complete	Week
Foundations Complete	Week
Upper ground floor complete	Week
Superstructure frame complete	Week
Envelope complete.	Week
All Lifts fully commissioned	Week
Landscaping complete	Week
Test & Commissioning	Week
Final Handover Inspections	Week

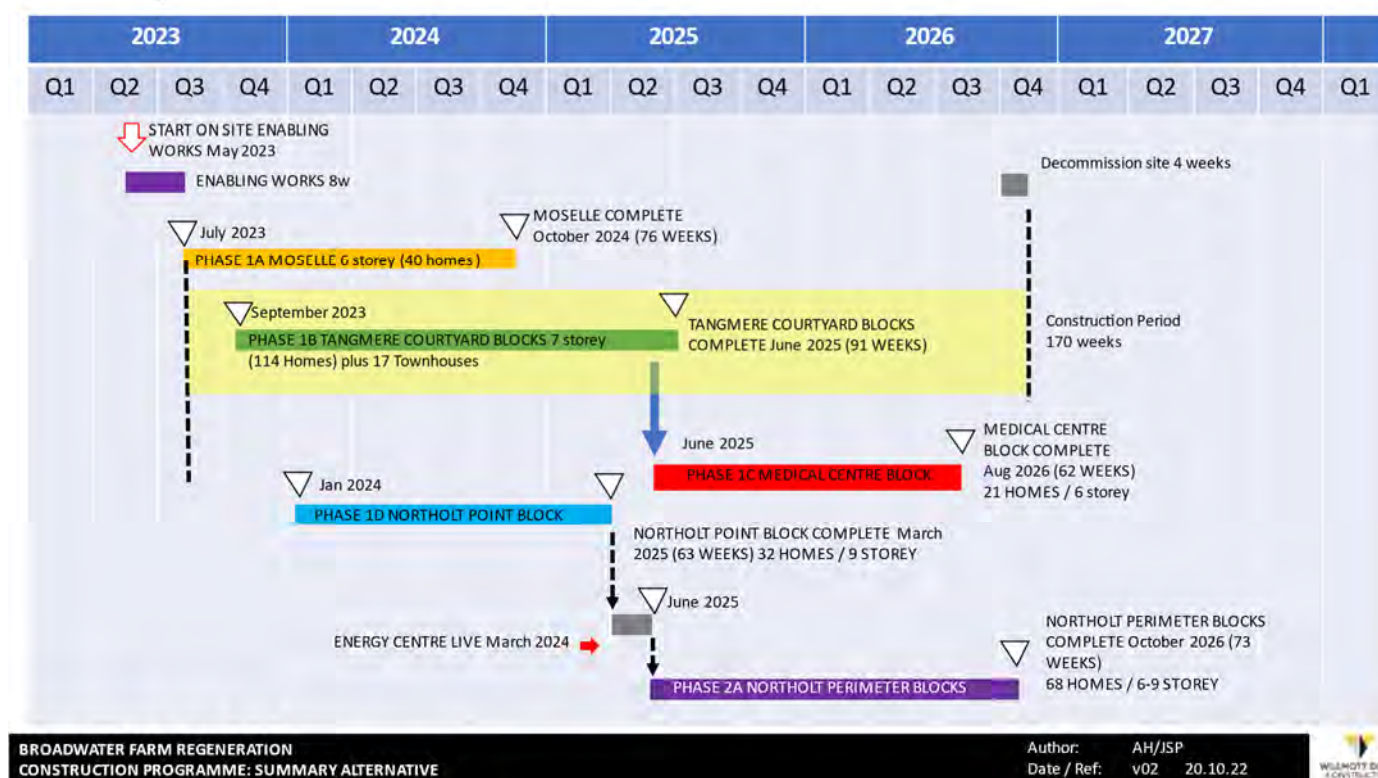
Construction Environmental Management Plan (CEMP)

Programme Overview

The Programme and sequence for the works is developed in conjunction with our design team, procurement team and our specialist supply chain partners (SCP). These activities take into account all the site environmental considerations extracted from the various pre-construction surveys ecological carried out during the second stage tendering phase of the project.

Detailed programmes are then developed for the construction elements for each phased and cover all work activities required to create the new homes. During each construction phase further detailed mid to short-term programmes will be produced monthly by the site team.

Design, procurement and off site manufacturing lead in periods for those key elements identified within the construction and fit out works have been identified within each of the phases the Construction Programme; these will be further established during the design development period. Milestones will also be incorporated into the procurement programme during the pre-construction period. Key milestones have been considered and put into our Programme as detailed above.



Construction Environmental Management Plan (CEMP)

3.0 Site Logistics & Deliveries Plans

3.1 Site Accommodation & Welfare Facilities

In order to ensure the majority of personnel stay on site between the periods of their arrival and departure, thereby minimising the impact of pedestrian traffic movement on and off the site, site accommodation and welfare facilities will be provided within each site. These satellite facilities will include the provision of main contractor offices, toilets, drying room, canteen and storage units sited in the pre-identified areas on each phase logistics plan and in line with CDM requirements.

The project will also be installing a central office facility to house those centralised disciplines that will be working on multiple work phases concurrently (design team, senior management etc). This facility like the phase specific ones will be self-contained and will remain in place across the full duration of the scheme, all satellite welfare facilities will be removed on completion of those individual phases.

Initial enabling works will require the use of temporary welfare units while the main satellite facilities are created and will be sited at an agreed location within the specific phase site boundary. This will allow us to provide suitable welfare for the small team of our specialist supply chain partners operatives to deliver those early phases works as identified within the programme.

The temporary welfare units consist of site offices and welfare split across a two storey Elliott's Eco Cabin. The ground floor provides the welfare and kitchen facility for operatives with the upper floor used by Willmott Dixon and our SCP management team as a Site office.

All project site accommodation & welfare facilities will be connected to mains services with temporary building supplies applied for. These TBS will provide water and electric requirements and therefore remove the need for alternative supplies (i.e. diesel generators) provided a more sustainable service while reducing potential environmental impacts from noise and odours.

Construction Environmental Management Plan (CEMP)

3.2 Site Access & Security for residents and operatives

Pedestrian access has been identified to each of the individual work phases to the site and facilities provided via a biometric turnstile system and will control access into the site areas. The turnstile facility will also have an intercom system in place to allow any visitors or those who have not been inducted to that specific project site, controlled access to the site. Once admitted through the turnstile system a safe segregated pedestrian route will allow all site personal and visitors access to the main site accommodation.

Through the implementation of the safe pedestrian route it will be possible to safely segregate foot traffic from construction vehicle traffic. Vehicle access points as identified on each phase logistic plan to the site will be via vehicles gates which will be manned by project traffic marshals at all times traffic. These gates will be under the control of project traffic marshals who will be based at these gates for the full duration of the site operating hours, if the marshals are required to leave the gate these will be secured to prevent uncontrolled access.

We will develop a security plan for the development and as a minimum; it will cover and allow for the following:

- Perimeter site security using CCTV cameras which will be 24 hour monitored off site.
- Adequate lighting will be fitted to the hoarding facing inward
- Accommodation and welfare facilities
- Materials storage and management
- Protection of completed works
- Protection of the site outside of normal hours
- Site rules and procedures
- Emergency call out numbers

3.3 Material Movement

WDC will designate space for supply chain partners' storage. Material stored outside of a lockable containers will be in designated areas and monitored by site management for Health & Safety purposes.

A philosophy of 'just in time' deliveries will be adopted where materials will be given a delivery date/time and recorded and controlled by WDC specialist logistics supply chain partner. For example, kitchens will be loaded straight into the units, bricks will be stored

Construction Environmental Management Plan (CEMP)

for the shortest possible time, timber will be stored in a dry location - all material deliveries will be considered and well planned. Deliveries will be controlled by a gateman and delivered/loaded out direct to the appropriate workplace.

We are employing a logistics company who have facilities for storing materials off site and then transport them as and when they are needed so the site environment is kept clean and efficient.

The gateman will also maintain the site entrance/exit so it will be always kept clean and tidy and control pedestrians crossing the sites vehicle access routes. Presentation of the site is of paramount importance to Willmott Dixon and daily checks will be made to ensure that dirt, dust, weeds, graffiti etc. are removed from site perimeters daily.

Principal storage areas will be displayed on a site layout and unloading will be supervised by a trained operative/manager who will have a clear understanding of our material control process.

Materials will be distributed vertically by tower cranes, hoists and telehandler. A telehandler will be used at specific times of the works programme to ensure materials are dropped as close to the working areas as possible to avoid manual handling, generally to serve areas outside of the crane's parameters. All plant and machinery will be operated and manoeuvred by competent and trained persons at all times.

3.4 Access Arrangements for Vehicles

All delivery vehicles will enter each specific site area via the identified main vehicle access entrance. It is our intention to designation an out gate so all delivery traffic will be one way and therefore not be required to turn around within the site-specific boundary.

All our SCP responsible for delivering material to the site and/or transporting material away from the site will be advised in writing of the proposed / agreed vehicular access routes and advised that failure to comply with the agreed route (other than in exceptional circumstances, such as the temporary closure of a road) will result in appropriate action being taken against the driver and his employer.

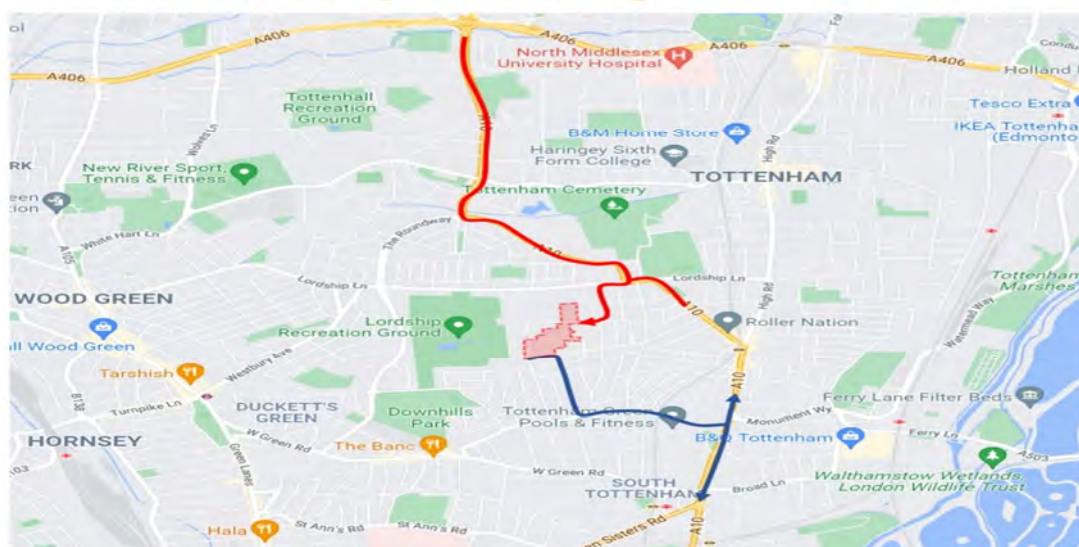
An overarching traffic management plan covering all planned construction phases has been developed in conjunction with the local authority highways and LTN's teams and has been

Construction Environmental Management Plan (CEMP)

circulated to all parties for agreement. It is intended that this will remain unchanged across the overall construction period but remains a live document should changes be identified as being required.

All vehicle and pedestrian routes will have clear signage and be segregated at all times. Parking bay suspensions will be obtained from Local Authority to facilitate the construction works and the inherent logistics.

Main Proposed Logistic Route



3.5 Vehicle Delivery Requirements

All delivery vehicles will enter each specific site area via the identified main vehicle access entrance. It is our intention to designation an out gate so all delivery traffic will be one way and therefore not be required to turn around within the site-specific boundary.

The traffic management plan will require all delivery drivers to contact the duty gateman/banksman before they approach site and to ensure that they are clear to proceed to site. Deliveries will be planned so that other than in unforeseen circumstances, drivers will be able to proceed directly into the site area without the need to wait within the local surrounding area. All deliveries to the site are pre-booked 24 hrs in advance with our specialist logistic team with specific delivery times allocated and managed by the specialist logistic team. Any unregistered vehicle or those outside of their timeslot will be refused

Construction Environmental Management Plan (CEMP)

access into the project and returned to their base, with a follow up by the project management team to ascertain the cause so to prevent reoccurrence.

Where any vehicle is waiting to be unloaded, it is to remain stationary with the engine switched off. Deliveries will generally be between 08:00 and 17:00 onsite, with busy traffic times avoided, and the gatemen available from 07:30 onwards to deal with any drivers that ignore the restrictions discussed above.

The project will also restrict delivery periods across the adjacent school morning drop off and afternoon collection periods, so to remove any construction traffic within this localised area.

An example below of the logistic set up for the Phase 1 Moselle site area:

Mid-Stage Site Logistic Plan Wk 33-45



Construction Environmental Management Plan (CEMP)

3.6 Vehicle Size and Frequency

The project in planning has undertaken the completion of the TFL Construction Logistics Planning Tool for each of the designated phased, to provide clear guidance on likely vehicle movement and sizing.

We foresee the likely range of delivery vehicles used during the construction process is as follows:

- 4-wheel Lorry/Van
- 6-wheel Lorry
- 8-wheel Lorry
- Low loaders – During Piling and Groundworks.
- Concrete lorries for superstructure frame

Below is a copy of the planning tool output sheet completed for the first planned phase of works:



Construction Environmental Management Plan (CEMP)

3.7 Hours of Operation

Construction activities are stipulated as part of a planning consent, between Mondays to Fridays 08.00 and 18.00 hours, and 08.00 to 13.00 hours on Saturdays, with no working activities on Sundays during any period. In the event of work being required out with these hours, e.g. abnormal load deliveries, commissioning works or emergency mitigation works, the Planning Authority will be notified prior to these works taking place, wherever possible and out of hours work application will be used in advance.

The construction sites will operate between:

- Monday – Friday 08:00 – 18:00
- Saturday 08:00 – 13:00
- No Out of Hours, Sunday or Bank Holiday working (unless approved by the Council).

3.8 Vehicle Arrival and Loading Arrangements

Vehicle arrival timings will be staggered to reduce unnecessary congestion within the site and the need for vehicles to wait. Where possible, all vehicles will arrive and depart the site following the designated one-way system as detailed on the phase specific logistic plan. If it is necessary for a vehicle (or vehicles) to reverse into or out of the site (by virtue of its size or constraints), a banksman will always control this activity.

Banksmen will supervise all arrivals and departures of vehicles. All vehicles leaving the site will have their wheels cleaned as required to ensure that no deposits are left on the road and in extreme cases when there is a large volume of vehicles exiting the site and weather conditions prevail, a road brush will be deployed. All vehicles leaving site will have their loads suitably sheeted and secured. All vehicles will also comply with any low emission zones.

Unloading/loading of delivery vehicles will be via tower crane(s), with the use of hi-ab or tele-handling plant from a designated zone as detailed on the phase specific logistic plan. Each site will have dedicated Banksman and gateman to ensure pedestrians can safely access the footpaths on the site and roads. All deliveries will be received and contained within the site boundaries and not on the public highway to assist with minimising the impact of project delivery traffic on the surrounding area.

Construction Environmental Management Plan (CEMP)

3.9 Parking Strategy

Information relating to parking and public transport will form part of the site induction pack so every construction operative is clear on the restrictions and limitations relating to parking.

We shall encourage employment of local labour to limit the number of supply chain partner operatives seeking to use personal vehicles and shall also encourage shared driving and the use of public transport. It is the schemes intention to not provide any on-site parking to further encourage the use of public transport and will investigate the viability of providing further steps such as mini-bus style transport from the site areas to the local tube links, to further strengthen this.

We do not envisage any major disruption during the construction works to surrounding properties and businesses, although the Construction Manager will make himself known to the Local business and resident teams, so that there can be a clear line of communication while the project is on-going.

3.10 Temporary Road Closure

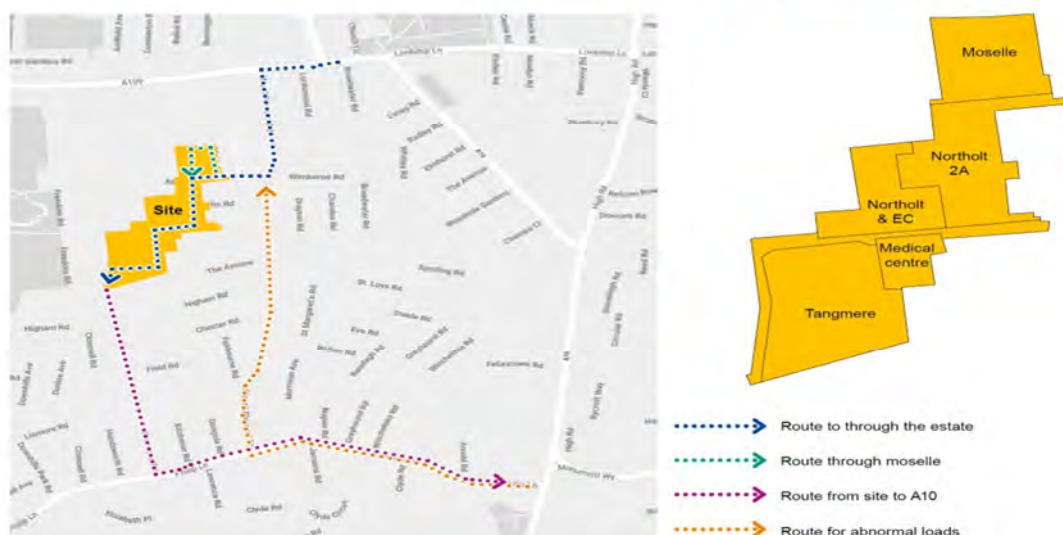
It is not currently envisaged that it will be necessary to apply for any road closures during the construction process, although it is possible that it will be necessary to apply for some form of temporary partially road closures to facilitate the movement of abnormally loads (i.e. tower cranes etc).

Any such abnormal load movements will be planned and discussed with the LA network and highways teams in advance, so to identify the timeframes and needs to accommodate these vehicle movements. The scheme has already identified tower cranes and piling rig plant as being such abnormal loading that will be required for all four phases of the scheme. Transport consultants have been engaged by the scheme and swept path analysis undertaken to identify an abnormal load route with discussions entered into with the LA teams.

Below is the current proposed abnormal load route:

Construction Environmental Management Plan (CEMP)

Main Local Proposed Traffic Route



3.11 Pedestrian and Cyclist Safety

Construction traffic poses a potential risk to pedestrians and cyclist's safety, particularly when entering and exiting the site. Vulnerable road users' will be carefully managed by the use of banksmen during all periods of operation at the site that will supervise and escort all arrivals and departures of construction traffic. All operatives will be trained in this role and have a full understanding of the potential risks. We will also ensure that the gatemen are prepared to speak to the general public and have an approachable manner to ensure our commitment to the Considerate Constructors Scheme is reinforced.

All our supply chain partners will fully comply with CLOCS and FORS. Willmott Dixon will record all vehicle movements to ensure that all the fleet arriving on site is complying with CLOCS and they have a silver certificate for the FORS as a minimum.

3.12 Site Logistics Plan

Refer to Appendix A for the full scheme logistic plans.

Construction Environmental Management Plan (CEMP)

Pls note that the first phase has been fully developed and detailed with this level of detailing yet to be applied to the following phases of 2, 3 & 4.

PART A: PLANNING AND PROCEDURES

1.0 ENVIRONMENTAL PLANNING & ECOLOGY

Procedures for environmental planning will be found in the Risk Management System and specifically RMS-PR-050 Project Environmental Planning procedure. Specific procedural actions will be designated for each project through completion of Mi|Risk, using RMS-PR-004 Assessing Risk Profile.

Emergency planning will be undertaken following the Safety & Environmental Emergency Planning Arrangements (SEEPa) procedure (RMS-PR-005) and completing RMS-PL-023. This document will be held in the site's red Emergency Folder.

Below are extracts from the schemes overall Environmental Management Plan:

1.1 ENVIRONMENTAL PLANNING GOVERNANCE

PRE-CONSTRUCTION PREPARED BY	Michael Nolan	DATE	
TITLE	Pre-Construction Manager	Signed	
CONSTRUCTION PHASE APPROVED BY	Andy Beck	DATE	
TITLE	Operations Manager	Signed	
REVIEW/VERIFICATION	Ketan Dalvi	DATE	
TITLE	Environmental Manager	Signed	
PERSON RESPONSIBLE FOR UPDATING THE PLAN	TBA		
TITLE	Senior Build Manager		

DISTRIBUTION	A hard copy will be held on site. Further copies are available on request.
---------------------	---

Construction Environmental Management Plan (CEMP)

1.2 REVISION RECORD

The Project Environmental Plan and associated documentation (in particular the MiRisk Aspects and Impacts Assessment) is to be **reviewed** (and updated as necessary through CRM) **at least each quarter** from the project start date **(or revised for any significant project programme or planned change)**, with the review date and/or any revisions logged below.

Rev	Date	Changes	Initial	
			OM/ CM	EM
04	07/03/23	Update PEP with Site Team; MiRisk; Site team members	AB	KD
05	13/03/23	Noise and Sec 61 updated; NRMM reg details	AB	KD

Construction Environmental Management Plan (CEMP)

2.0 PROJECT DETAILS & DESCRIPTION

PROJECT summary based on Mi Risk and Preconstruction information				
Name	Broadwater Farm Regeneration Scheme			
Address	Adams Road Tottenham N17 6HE (what3words: socket like again)			
Client	London Borough of Haringey, London			
Timescale	Start Date	20/03/23	Estimated Completion Date	22/11/26
PROJECT DESCRIPTION				
Project delivery of 294 homes across three sites within seven blocks and a proportion of town houses. The provision of a new energy centre, commercial spaces and external works including new and revised road infrastructure. The redevelopment of the buildings on site. It is understood the proposed development includes the demolition of Northolt, the Energy Centre, Stapleton North, the Enterprise Centre, Medical Centre, Tangmere House and the former Moselle School. The new development will include predominantly low to medium rise residential buildings (up to 10 storeys) with some retail, enterprise and healthcare units and a new energy centre. New areas of communal soft landscaping and private gardens will be included.				
SITE OVERVIEW				
The site is located:	The proposed development site is the first phase of an estate-wide regeneration scheme, as shown in the red line boundary in figure below. The site lies within West Green in the east of Haringey and is not subject to any nature conservation designations. It forms part of the Broadwater Farm Regeneration Scheme and comprises four buildings, Enterprise Centre Building, former Moselle School, Tangmere Block and Northolt Block, which are all scheduled for demolition. The culverted River Moselle runs from the west to the northeast of the site. The site was dominated by large buildings and surrounding hardstanding. The main habitats on site were areas of amenity grassland, introduced shrub, mixed scrub, plantation woodland and scattered trees. The site was dominated by four buildings (B1-B4), of varying height between one and eighteen storeys and are described below. Building 1 (Tangmere Block) was a six-storey brick-built residential block of ziggurat construction above a concrete podium with a textured cladding and flat roof located south of the site. Building 2 (Northolt Block) was an eighteen-storey brick-built residential tower block building with a grey textured cladding and a flat roof located south of the site. Adjacent to the building was a brick-built low-rise			

Construction Environmental Management Plan (CEMP)

	enclosure with a flat roof which served as an Energy Centre for the entire estate. Building 3(Enterprise Centre) ranged in height from one to three storeys and served as commercial/workshop units. The building was located south of the site and was constructed from brick and had a flat and lean-to clay tiled roof. The building appeared to be in an overall good state of repair. Building4(Former Moselle School) was a one-storey brick-built former school building. It was constructed from brick and had a flat roof clad in roofing felt.																								
UXO	There is a medium risk of Unexploded Ordnance (UXO) at the site.																								
Geology:	The ground conditions beneath the site comprise a variable thickness of Made Ground and Alluvium over the London Clay Formation, with the Lambeth Group (Reading Formation and Upnor Formation) and Thanet Formation at depth.																								
Contaminated Land:	The results of the assessment outlined for the Topsoil indicate that the contaminant concentrations are generally below their respective assessment criteria with respect to a residential without homegrown produce consumption end use. However, concentrations of lead, nickel, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene are marginally elevated above their assessment criteria. No asbestos was detected by laboratory microscopy in the analysed samples of the Topsoil. These exceedances are considered marginal and therefore associated risks from the Topsoil to future site users are considered to be low to moderate. The risks to off-site human health receptors from contaminants within the Topsoil are considered to be low. Table 17. Summary of Elevated Contaminant Concentrations in Topsoil <table><tr><th>Contaminant</th><th>Location and depth</th><th>Concentration (mg/kg)</th><th>GAC (mg/kg)</th></tr><tr><td>Lead</td><td>WS05 at 0.7m bgl & WS08 at 0.1m bgl</td><td>220 and 240</td><td>200</td></tr><tr><td>Nickel</td><td>WS05 at 0.7m bgl</td><td>190</td><td>182</td></tr><tr><td>Benzo(b)fluoranthene</td><td>WS08 at 0.1m bgl</td><td>6.7</td><td>3.31</td></tr><tr><td>Benzo(a)pyrene</td><td>WS08 at 0.1m bgl</td><td>5.3</td><td>2.73</td></tr><tr><td>Dibenzo(a,h)anthracene</td><td>WS05 at 0.7m bgl & WS08 at 0.1m bgl</td><td>0.99</td><td>0.297</td></tr></table>	Contaminant	Location and depth	Concentration (mg/kg)	GAC (mg/kg)	Lead	WS05 at 0.7m bgl & WS08 at 0.1m bgl	220 and 240	200	Nickel	WS05 at 0.7m bgl	190	182	Benzo(b)fluoranthene	WS08 at 0.1m bgl	6.7	3.31	Benzo(a)pyrene	WS08 at 0.1m bgl	5.3	2.73	Dibenzo(a,h)anthracene	WS05 at 0.7m bgl & WS08 at 0.1m bgl	0.99	0.297
Contaminant	Location and depth	Concentration (mg/kg)	GAC (mg/kg)																						
Lead	WS05 at 0.7m bgl & WS08 at 0.1m bgl	220 and 240	200																						
Nickel	WS05 at 0.7m bgl	190	182																						
Benzo(b)fluoranthene	WS08 at 0.1m bgl	6.7	3.31																						
Benzo(a)pyrene	WS08 at 0.1m bgl	5.3	2.73																						
Dibenzo(a,h)anthracene	WS05 at 0.7m bgl & WS08 at 0.1m bgl	0.99	0.297																						
Asbestos:	Asbestos fibres were identified by laboratory microscopy within three samples of Made Ground on site therefore, it is considered that there is the potential for further asbestos fibres to be encountered on site. Asbestos quantification testing where fibres were identified in the Made Ground in BH01, TP09 and TP13 has yielded results of <0.001% for each sample. These soils will be able to be disposed at a non-hazardous facility that accepts low quantities of asbestos. It is noted that visual segregation of the Made Ground containing asbestos fibres is not likely to be possible																								

Construction Environmental Management Plan (CEMP)

	and frequent testing will be required by the contractor to accurately classify soil arisings for disposal purposes. Watching brief should be employed during earthworks and construction works by the Contractor. Should areas of unexpected contamination be encountered or suspected, including asbestos, a qualified geoenvironmental engineer should be informed and the risk associated with the contamination assessed.
Groundwater:	The site is not located within a groundwater Source Protection Zone and there are no groundwater or surface water abstraction licenses within 500m of the site.
Watercourses & Flood Risk:	The only hydrological feature on site is The River Moselle, a statutory main river, which since the development of the estate in the 1970's has run through a culvert beneath the site. The highest surface water flooding risk on the site is high (1 in 30 year return period) and the groundwater flooding risk is moderate (risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model).
Biodiversity:	Recommendations to enhance the biodiversity value of the site in accordance with national and local planning policies comprise the planting of scattered trees on site where possible, inclusion of biodiverse roofs, green walls, wildlife planting, flowering lawns, SuDS, and the provision of bat and bird nesting opportunities. The provision of bat tubes and boxes integrated into the fabric of the new buildings is recommended at this site as it would enhance bat roosting opportunities and replace the lost potential roosting features (PRFs). Suitable tree and shrub species include silver birch, hazel, oak, apple, cherry, honeysuckle, hawthorn and elder. It is recommended that a scheme of soft landscaping is submitted, including tree planting details which address the potential loss of visual public amenity where tree removal is unavoidable. The tree selection should be appropriate to the site and chosen from a species palette in accordance with local tree planting policies and in accordance with any recommendations provided in the PEA and any subsequent ecology reports.
Trees:	The main habitats on site were areas of introduced shrub, plantation woodland, dense scrub, tall ruderal and scattered trees. The site does not form part of any statutory or non-statutory nature conservation designation. The dominant species was fat hen, with occasional Canadian fleabane, yarrow, green alkanet and nettle. Planted woodland was present along the southern boundary of the site and included species such as lime, sycamore, silver birch, Lombardy poplar and cherry.

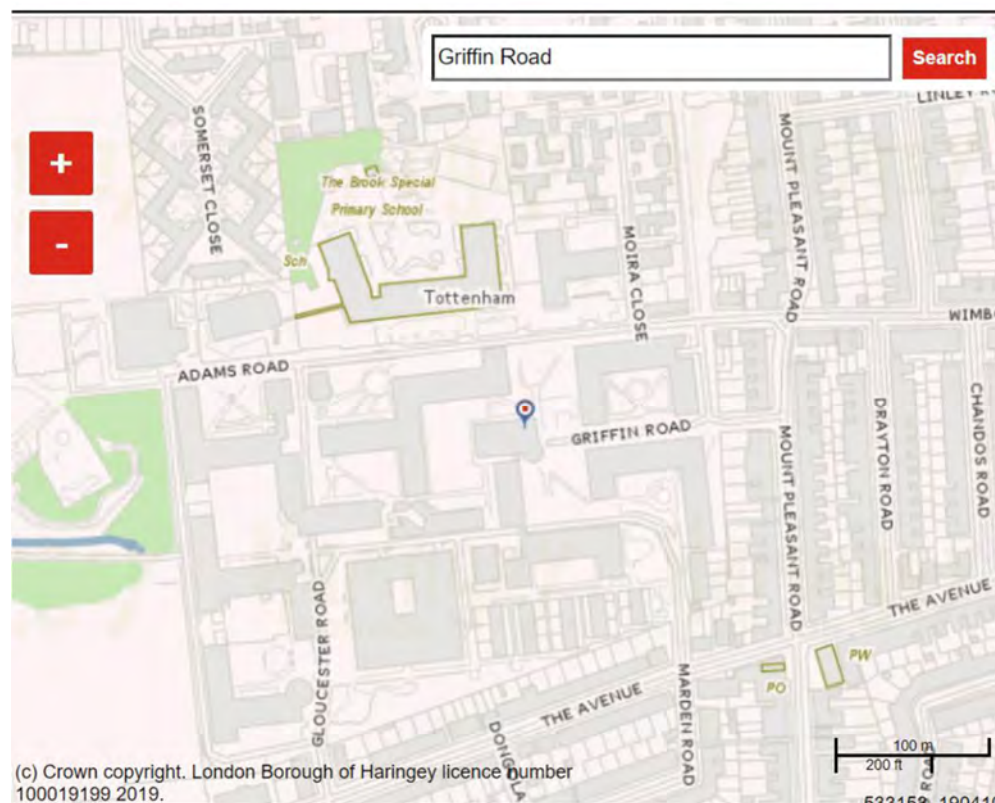
Construction Environmental Management Plan (CEMP)

Several areas of amenity grassland were present on site and comprised locally dominant perennial ryegrass and red fescue, with abundant ribwort plantain and occasional dandelion and sward.

Several young, semi-mature and mature trees were scattered throughout the site and included ash, London plane, silver birch, cherry, lime and sycamore

Hornbeam and beech hedging ranging between 1 to 1.5m high was present along the southern and western edges of the school car park and appeared to be frequently managed. The hedgerows also contained dog rose, blackthorn and cherry laurel. **The hedgerows meet the criteria to qualify as a Habitat of Principal Importance and is therefore of local importance.**

It was confirmed that no trees situated in or adjacent to the site were subject to Tree Preservation Order or Conservation Area restrictions(Extract from LB Haringey TPO search. Snip of LBH Tree Constraints check is below.



It is recommended that the locations of the proposed services be carefully planned in consultation with the Arboricultural Consultant and wherever possible, existing service pipes and trenches are re-

Construction Environmental Management Plan (CEMP)

	used to avoid the need for excavations inside the RPAs of trees to be retained. All tree works should give due consideration to the potential presence of protected species, including breeding birds and roosting bats. The Preliminary Ecological Appraisal (The Ecology Consultancy, 2021) and any subsequent ecological reports should be consulted prior to the commencement of works. Arisings from tree works(e.g. wood piles and standing dead trunks) can provide valuable habitats for wildlife. As such, consideration should be given to their retention on site in areas unlikely to cause issues to public health and safety. All tree pruning should be carefully planned and undertaken in accordance with BS 3998: 2010 Recommendation for Tree Works. The following trees will require removal: G28, G29, T97, T98, T99, G17, G16, G12, G14, G15, G18, G19, T77, T85, G22, T86, T34, T35, T33, T37, T38, T39, T40, T41, T42, T43, T44, G1, T4, T5, T7, T8, T9, G3, T22, T23, T21, T24, T19, T20, H4. G28, G29, G27, T94, T84, T85, G22, T86, T34, T35, T100, T33, T31, T32, T37, T38, T39, T40, T41, T42, T43, T44, G2, T4, T5, T7, T8, T9, T19, T20, T21, T22, T23, G3, H4.
Bats	No bats or evidence of bats were found during the external inspection of all buildings on site. No bats were recorded emerging or returning to roost from buildings subject to survey. As such, bats do not pose a constraint to the proposed works and no further surveys are required. The development of the site is unlikely to impact the foraging resource and commuting route, provided sensitive artificial lighting is employed and habitat is enhanced on site. There were low levels of commuting foraging activity from minimum of three species of bat (common pipistrelle, Myotis sp. And noctule) recorded during the dusk survey.
Nesting Birds	There is a moderate potential for breeding birds to be present at the site. The areas of scattered trees, plantation woodland, introduced shrub, mixed scrub and buildings on site had the potential to support nesting birds. The habitats at the site were unlikely to support the majority of the species recorded in the data search, with the exception of common breeding bird species such as feral pigeons and house sparrows, which were observed using the buildings on site during the habitat survey.
Invasive Species	An unknown species of Cotoneaster was recorded on site. Certain species of cotoneaster are listed as invasive through their inclusion on Schedule 9 of The Wildlife and Countryside Act 1918 (as amended). If removed, it is recommended that a precautionary approach is taken and that the cotoneaster should be chemically treated and either burned or buried on-site or removed from site and disposed of at a licenced landfill as control waste.

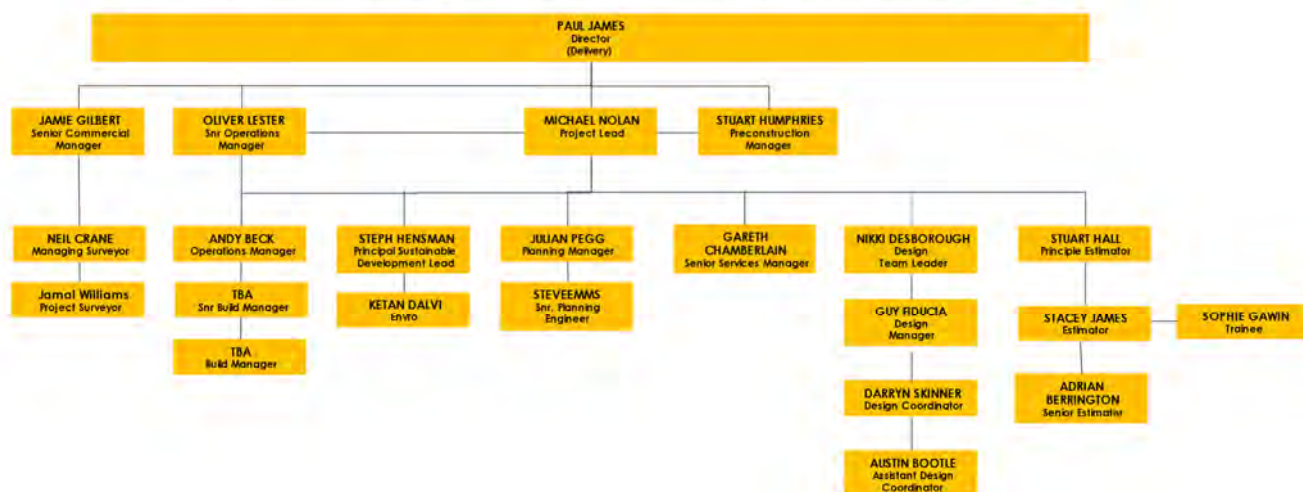
Construction Environmental Management Plan (CEMP)

Archaeology:	Details of Listed Building status, proximity to ancient monuments, archaeological watching briefs.
Refer to the project's Mi/Risk assessment that addresses the environmental aspects with detailed impacts mitigation plan and actions required to manage these items.	

4.0 Management Structure and Responsibilities

'Everyone Plays Their Part'

Broadwater Farm Regeneration | Willmott Dixon Team Organogram



MN

The roles, responsibilities and reporting mechanisms will be clearly defined and communicated to all members of the team and on a regular basis. In addition, where team members are responsible for delivering part of the project, they will be properly informed of their responsibilities with deliverable milestones agreed.

The project structure will follow the traditional format with a visiting Operations Director and a site-based team including Snr Operations, Operations & Construction Managers, Snr Build & Build Managers (staggered throughout the phasing) and a site based commercial team.

Construction Environmental Management Plan (CEMP)

The Operations Director and Snr Operations Manager will direct and integrate resources whilst meeting performance standards, programme in dates, and cost objectives. They will also be responsible for the team's guidance, motivation, output and control and for successfully organising the project by carefully mixing financial and physical resources at the proper time.

A roles and responsibility matrix will be developed to provide clear guidance on the responsibility of the project including assigning priorities and tasks to individual and teams.

4.1 Management Meeting overview

To ensure that the project is kept on programme and budget, Willmott Dixon Construction has set out procedures that require the following:

Weekly contractor consultation team meetings will be held on site with all of the site team.

The meetings will look at, but not limited to:

- Site Health & Safety
- Contractor performance
- Short term programming
- Staffing/manning levels

These meetings will be followed by a monthly internal Contract Review Meeting (CRM).

This will be held on site with all of the Willmott Dixon team.

These will look at the project in the following, but not limited to;

- Current Contract Completion Date
- Current Progress Position
- % Planned and Actual Progress
- Project Milestones
- Anticipated Completion Date
- Areas of Future Concern or Opportunity
- Brief Description of Progress in the Period
- Brief Description of Key Activities in Next Period
- Inclement Weather Recorded in the Period
- Critical Information Outstanding
- Instructions Required

Construction Environmental Management Plan (CEMP)

- Financial Report
- Safety – Accidents, Incidents and Safety Score
- Quality – Issues, Signoffs and Agreements
- Environmental – Issues
- Staffing requirements

These meetings are then followed up by an external Contract Review Meeting with the customer team (This meeting will also be held on site or at a suitable agreed location local to site). Willmott Dixon will then issue the findings of the above CRM and discuss any project specific points agreed prior to the initial meeting.

5.0 Environmental Mitigation

5.1 Noise Control

Noise and vibration statutory nuisance are controlled under the Environmental Protection Act 1990. The Best Practicable Means (BPM), as defined in Section 72 of the Control of Pollution Act 1974, shall always be employed to reduce noise (including vibration) to a minimum, with reference to the general principles contained in British Standard BS5228: 2009+A1:2014 'Noise and Vibration Control on Construction and Open Sites'.

External Noise consultant was appointed to carry out an environmental noise assessment for the proposed Broadwater Farm Regeneration Scheme.

The project will apply for prior consent under Section 61 application of the Control of Pollution Act 1974 to Local Authority Environmental Pollution, Policy & Projects Team Public Protection. Noise will be monitored in accordance with discussions and agreement with EHO (Environmental Health Officer) of the council, for the construction phase of the project.

Willmott Dixon will install two noise, dust and vibration monitoring stations on the outer boundaries of the live scheme working area, that will record these elements along with general wind speeds and direction. This regime of noise, dust & vibration monitoring will be implemented with the purpose of identifying and recording these levels so to be able to review if this is causing an impact on the local adjacent areas, demonstrating that Best Practicable Means are adhered to and to allow investigating of complaints with recorded data. Through the placement of the stations unattended continuous monitoring will be

Construction Environmental Management Plan (CEMP)

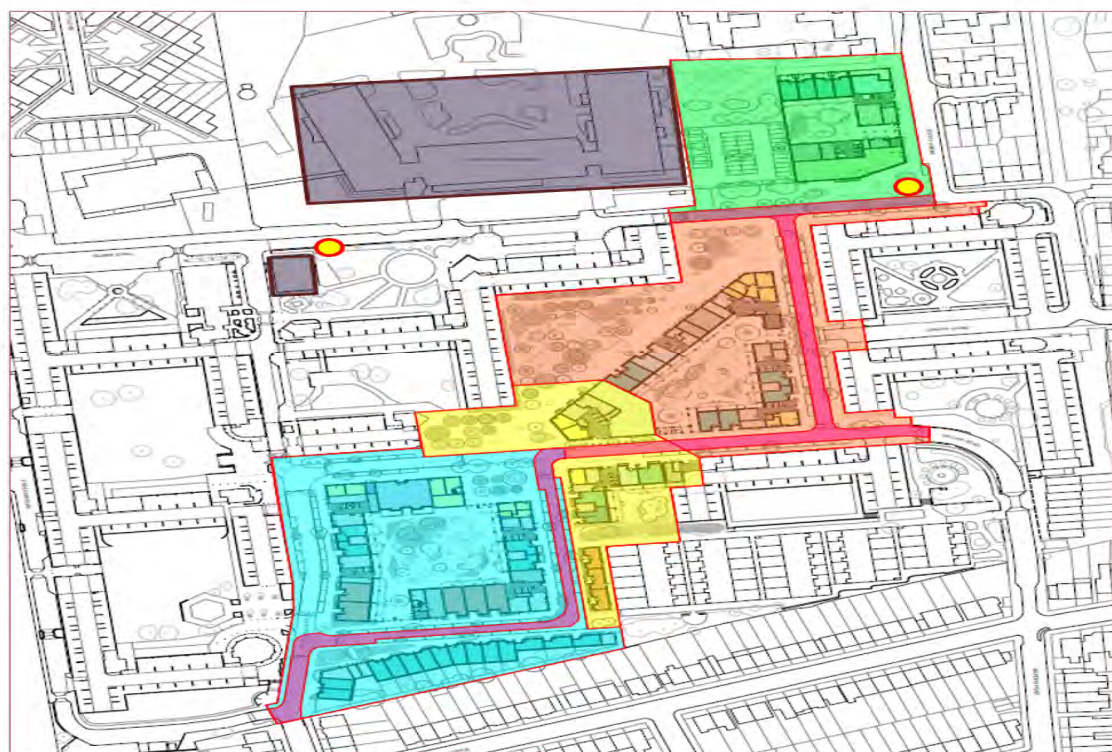
implemented throughout the life of the project. Suitable noise control measures to be detailed, planned and actioned, as appropriate. Noise, dust and vibration monitoring results will be kept on record and be available on request.

Example of initial monitoring locations for Phase 1 Moselle site:

Monitoring Locations – Plan View – Initial Locations.

Two in number, fixed and mains powered noise dust and vibration monitors will be installed at the locations below. These will be the Casella Guardian monitors. The units will provide early warning and exceedance alerts to nominated staff members and a qualified person for reporting purposes.

The design of the units are such that they can and will be moved as the suite progresses.



 Key Receptors

All other colours are construction Phases.

Where practical, it is intended that noise monitoring will be undertaken externally at secure locations representative of the nearest most noise exposed sensitive receivers to each works phase, and which are likely to experience minimal interference from extraneous domestic and third-party commercial activity.

Other sources of noise within the area include traffic on local roads and pedestrian associated noise.

Construction Environmental Management Plan (CEMP)

The potential noise disturbance from the site may result from vehicle movements, Before works on site are commenced, all contractors should make available for inspection a method statement (in accordance with the principle described in BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open site) stating precisely the type of plant to be used and the proposed noise control methods. The contractors will also be required to comply with best practicable means as defined in Control of Pollution Act 1974. All activities will be guided by the Code of Practice and undertaken following consultation on noise management.

Where the measured noise levels are more than 3 dB (A) above the predicted noise levels or in the event of a complaint of noise an investigation shall be carried out to ascertain the cause of the exceedances or the complaint and to check that Best Practicable Means are being used to control the noise in accordance with the steps set out in the application for 'prior consent'. Noise levels shall be reduced further if it is reasonably practicable to do so.

Willmott Dixon will follow best practicable means to reduce the noise effect on the local community including the following:

- Materials will be handled with care e.g. material such as scaffolding, and steelwork will be placed rather than dropped.
- Drop heights of materials from lorries and other plant will be kept to a minimum.
- With regards to the piling of foundations, to ensure where possible, that noise and vibration effects during these works are minimized.
- Fixed and semi-fixed ancillary plant such as generators, compressors and pumps liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors.
- The use of barriers to absorb and/or deflect noise away from noise sensitive areas will be employed where required and reasonably practicable.
- All plant used on site, paying attention to the integrity of silencers and acoustic enclosures will be maintained in good and efficient working order and operated such that noise emissions are minimized as far as reasonably practicable.
- As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective should not be operated until repaired.
- Where reasonably practicable, fixed items of construction plant should be electrically powered in preference to diesel or petrol driven.
- Vehicles and mechanical plant, where reasonably practicable, will be fitted with effective exhaust silencers and will be maintained in good working order and

Construction Environmental Management Plan (CEMP)

operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.

- Machines in intermittent use should be shut down or throttled down to a minimum during periods between works.
- Risk Assessments and Method Statements (RAMS) from contractors will be scrutinised and authorized before work commences to ensure the requirements above are understood, factored into working methods and adhered to.

5.2 Vibration

Code of practice for noise and vibration control on construction and open site) stating precisely the type of plant to be used and the proposed noise control methods. The contractors will also be required to comply with best practicable means as defined in Control of Pollution Act 1974. All activities will be guided by the Code of Practice and undertaken following consultation on noise management.

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 and using a suggested trigger criterion of 2mms^{-1} for commercial). Lower limits will be agreed if there is a risk that vibration levels may interfere with vibration sensitive equipment or other vibration sensitive objects.

Construction activities will be carried out in such a way that vibrations arising will not cause significant damage to adjacent structures. It is not foreseen that vibration monitoring will be required by the Project given the nature of the works and the location of the phases in relation to existing estate structures. Should during the overall construction phase this requirement changes then the project will ensure that following measures are taken:

- Protect the residents, users of buildings close by and passers-by from nuisance or harm and
- Protect buildings from physical damage.
- Upon determining appropriate vibration levels, we shall consider:-
- Human exposure
- Protection of structures

As per Code of practice for Construction we have vibration trigger limits as per follows

Construction Environmental Management Plan (CEMP)

Vibrations levels on site will be set as

- 1mm/s for nearby occupied residential
- 3mm/s for occupied commercial premises
- 5mm/s for other unoccupied buildings

5.3 Dust & Air Quality

Management of Dust:

The main regulatory controls over dust are the 'statutory nuisance' provisions contained in the Environmental Protection Act 1990. Dust can give rise to a statutory nuisance if it is considered to be 'prejudicial to health or a nuisance'. The application of standard dust control measures included in the British Research Establishment guidance (Building Research Establishment, 2003) are normal working practice on all well managed construction sites in the UK. Standard measures will be applied to the construction areas within the Site as agreed with the local authority air quality/pollution control officer or Environmental Health Officer.

Dust control measures will include:

A noise and dust monitoring system will be implemented ensure all site activities are within the limits set out by DEFRA and 190 ug/m³ site action level set by Local Authority.

Dust monitors will measure PM₁₀ and PM_{2.5} will set as per the alert levels for Dust Monitors are set by Department of Environment Food and Rural Affairs (DEFRA) and the Environmental Agency (EA).

Action levels

- 190ug/m³ - Trigger level – Be Aware, take action as required to reduce levels
- 250ug/m³ - Action Level – Take action necessary to immediately reduce the dust levels
- 500ug/m³ - Stop works and re assess action needed to progress

The Project will use real time monitoring system 24/7 online real time reporting for Dust.

Willmott Dixon supervision is trained in the control of dust and will ensure the scheme is monitored for levels of surface dust. Where dusts build up possible any dust producing activities are to be suppressed via a fine spray jet of water directed at the source of dust

Construction Environmental Management Plan (CEMP)

generation via a water bowser and spreader bar. The water run-off from this process will be absorbed by the excavation arising's and will not drain into the existing drainage system.

- Site will install real time dust monitor to measure and record dust PM10&PM2.5 on site.
- Site will record all dust and air quality complaints, identifying cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- The access roads into and out of the individual phase will be monitored for excessive dust build up. Should surface dust build up the road will be swept.
- The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the environment manager/engineer or the site manager.
- Avoid bonfires and burning of waste materials.
- Machinery and dust generating activities to be located away from sensitive receptors where practicable.
- physical barriers or screens installed to the site perimeter where appropriate to limit the dispersal of dust emissions, and
- loose materials to be covered as soon as possible.

Dust nuisance generated during various activities during the course of the project. These activities include the following:

- Demolition
- Excavation
- Ground worker
- General builders work activities

5.4 Air Quality - Smoke, Fumes; Odour & CO2 Emission Monitoring

Monitoring of dust, odour and noise during the construction phase will act as precursors to any health impact, thereby enabling a monitoring regime that enables intervention before any manifest adverse health outcome.

It is recognized that a key concern for the local community and the surrounding areas will be any disturbance to air quality caused by traffic generated during the construction stages associated with the overall scheme. In terms of the construction phase of the project,

Construction Environmental Management Plan (CEMP)

mitigation measures will be implemented as part of a construction traffic management plan.

Willmott Dixon site management team will be based on-site during the construction period to ensure all contractors and material suppliers are safely implementing the Construction Traffic Management Plan (CTMP).

All sub-contractors, operatives and suppliers will be made aware of the Construction Traffic Management Plan (CTMP). It also lays out the Traffic Management Principles and areas of storage and construction vehicles.

All Willmott Dixon sites have developed software which calculates the CO2 emission for all deliveries and waste removal, fuel on site, water and electricity. Each month this is issued to regional head offices to collate company statistics. Project specific data will be issued upon each project meeting and within Willmott Dixon offices and canteen each month.

There is no potential for odour generation and nuisance to occur during the construction phase. But Willmott Dixon site team will employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution if it arises. Site team will prevent unacceptable odour releasing incidents or accidents by anticipating them and planning accordingly. Prevent unacceptable odour pollution ; Odour will be part of weekly inspection regime by site managers. Any such inspection will consider the odour sources identified coupled with the identification of any new sources. Any odour finding will be communicated to the construction manager so that any changes required to working practices or measures to control and mitigate odour may be implemented.

Where possible, the location of the complainant will be visited immediately to verify the nature of the odour. Where the source is confirmed to relate to the works, the construction manager will be contacted immediately to cease or modify the operation causing the odour until suitable mitigation measures are devised.

Construction Environmental Management Plan (CEMP)

NRMM

NRMM-The Non-Road Mobile Machinery (Low Emission Zone) Its purpose is to reduce harmful Nitrogen Oxide and particulate matter (PM10) emissions from all major developments to reduce impact on air quality standards.

All Non-Road Mobile Machinery (NRMM) used on site will meet EU directive 97/68/EC to meet air quality monitoring targets. Its purpose is to reduce harmful Nitrogen Oxide (NOx) and dust/particulate matter (PM10) emissions, specifically from variable and constant speed engines, from this major development to reduce impact on air quality standards. NRMM (vehicles and plant) should be well maintained. Should any emissions of dark smoke occur (except during start up) then the relevant machinery should be stopped immediately, and any problem rectified before being used.

Engines and exhaust systems should be regularly serviced according to manufacturer's recommendations and maintained to meet statutory limits/opacity tests. NRMM includes all large site plant with net engine power between 37kW and 560kW. This includes plant such as generators, tele-handlers and excavators. Planning conditions are to be reviewed to check whether specific NRMM requirements are present' Communicate requirements for the correct engine stage to subcontractors and suppliers. Check all plant coming onto the project meets or exceeds the emission requirements. Register the site on nrmm.london/nrmm.

Create and maintain the online register of all site equipment for Local Authority review

In addition, the following traffic management principles should be observed:

- In circumstances to reduce vehicular movements, deliveries will be made direct to the work zone to mitigate double handling and double vehicular movements.
- Delivery vehicles whenever practical will avoid 'peak public traffic hours' to reduce traffic congestion and nuisance to the existing road and highway network.
- To avoid construction traffic congestion and nuisance to the surrounding area all suppliers and contractors will be made aware of traffic routes.
- Site entrances will be maintained and kept clean and clear. There will be a road sweeper in operation when required and in line with the works activities to ensure no mud is left on the live highway as a direct result of the works.
- All materials will be loaded within the site compound/boundary of the working zone to minimise congestion.

Construction Environmental Management Plan (CEMP)

- For environmental and road safety all materials containers leaving site will be appropriately covered to avoid soiling of the roads and highway. Engines of all vehicles, mobile and fixed plant on site are not left running unnecessarily.
- Using low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices.
- Plant will be well maintained, with routine servicing of plant and vehicles to be completed in accordance with the manufacturer's recommendations and records maintained for the work undertaken.
- Avoiding the use of diesel- or petrol-powered generators and using mains electricity or battery powered equipment where available.

All commercial on road vehicles used in construction must meet the European Emission Standards pursuant to the EC Directive 98/69/EC (commonly known as Euro standards) of Euro IIIB during any works. Construction traffic coordinator will be employed during the construction period to monitor heavy goods vehicle deliveries and collections of construction materials to and from the site to ensure compliance so far as practicable by contractors with the above requirements.

Broadwater Farm Estate,

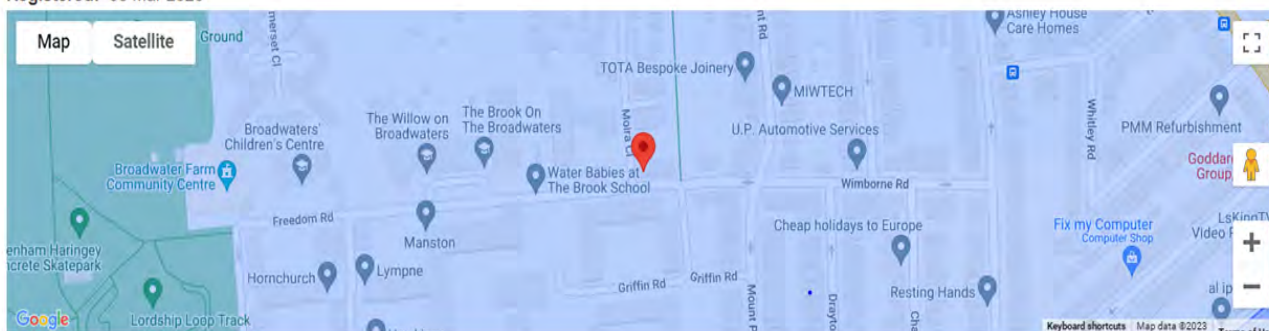
Haringey, N17 6HE, Greater London

Planning app. #: HGY/2022/0823

Start/End: 20 Mar 2023 - 02 Dec 2026

Registered: 08 Mar 2023

✓ Edit



Contacts

Direct Site Contact

Ketan Dalvi Ketan.Dalvi@WillmottDixon.co.uk

Site Administrator

Ketan Dalvi ketan.dalvi@willmottdixon.co.uk

Construction Environmental Management Plan (CEMP)

5.5 Waste Management

Waste is managed in the most efficient way by encouraging re-use and re-cycling on-site and maximising segregation. Rubbish will not be allowed to accumulate and cause a fire hazard; all waste will be collected from site in skips. These shall be emptied regularly.

Though site waste management plans are no longer a legislative requirement, we continue to use them to help us create resource efficiency action plans for our construction projects.

We have targets for construction waste volumes which we upload our waste monitoring data onto our system MiProject section MiSED, and we use the system to report the waste generated on the project, and the quantity diverted from landfill through recycling and recovery can be reported. We also upload our anonymised data to the WRAP Construction Portal.

The site team will include a waste champion, and there will be a visiting Environmental Manager to audit operations and ensure procedures to minimise the environmental impact of operations. They also review the site's energy and waste data.

Designing out waste

Waste is a consideration right at the very beginning of a project, so we use Building Information Modelling Management (BIMM) to avoid costly mistakes in time and resources. "Designing out Waste" workshops will be help with as the design progresses and we use an IMPACT tool which helps us undertake whole life analysis and whole life costing on different materials, so we select the right ones for the job.

Recycled content

We are working towards a 100% landfill diversion rate, so we recognise the need to 'close the loop' by specifying materials with higher recycled content, since this will support markets for the materials we and others send for recycling. This also helps to reduce the quantities of materials we send to landfill, and the amount of virgin materials we use.

Working with suppliers

We work with product suppliers to apply the waste hierarchy to the management of waste materials and encourage re-use ahead of recycling and recovery, for example making use of discarded furniture and the repair and repatriation of pallets. These initiatives are improving our management of waste and increasing diversion from landfill, as well as helping us reduce costs.

Where re-use is not possible, we work with suppliers to develop and identify take-back schemes, and we keep a comprehensive list of these for our site teams to use. The list and accompanying guidance help our design teams understand where 'closed loop' takeback schemes are available and gives our project teams an understanding of which

Construction Environmental Management Plan (CEMP)

products and materials they can send directly back to manufacturers. A suite of toolbox talks, posters and guidance notes are available within our Environmental Management System.

Our MiProject section MiSED allows us to identify waste streams that are still difficult to divert from landfill, and we work with manufacturers to trial alternatives and implement takeback schemes when no alternative has been identified.

Waste contractors

All our waste contractors must complete a pre-qualification questionnaire to assess that they meet our standards, before they can become approved and listed within our Supply Chain System. This asks that they report their performance in accordance with PAS 402 (a specification for performance reporting for waste management organisations) in accordance with our Sustainable Procurement Policy.

We carry out a detailed on-site audit on their premises, so we can be sure that they have the right segregation capabilities and can meet our data return requirements. We check their documentation for duty of care compliance and view working conditions for their employees.

Contaminated Land

The results of the assessment outlined for the Topsoil indicate that the contaminant concentrations are generally below their respective assessment criteria with respect to a residential without homegrown produce consumption end use. However, concentrations of lead, nickel, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene are marginally elevated above their assessment criteria.

No asbestos was detected by laboratory microscopy in the analysed samples of the Topsoil. These exceedances are considered marginal and therefore associated risks from the Topsoil to future site users are considered to be low to moderate. The risks to off-site human health receptors from contaminants within the Topsoil are considered to be low.

5.6 Pest Control

We will ensure that the risk of infestation by pest or vermin is minimised by adequate arrangements for disposal of food waste or other material attractive to pests. If infestation occurs, we will take such action to deal with it as required by the Environmental Health Officer.

5.7 Drainage

Site drainage, including surface runoff and dewatering effluents, will be discharged to sewers where reasonably practicable. Site drainage will meet the requirements for effluent and flood risk standards required by the sewerage undertaker.

Construction Environmental Management Plan (CEMP)

During construction, protection measures to control the risk of pollution to surface water will be adopted. These will include:

- Any containers of contaminating substances on site will be leak proof and kept in a safe and secure building or compound from which they cannot leak, spill or be open to vandalism. The containers will be protected by temporary
- Impermeable bunds with a capacity of 110% of the maximum stored volume.
- Areas for transfer of contaminating substances will be similarly protected.
- All refuelling, oiling and greasing will take place above drip trays or on an impermeable surface which provides protection to underground strata and watercourses and away from drains as far as reasonably practicable.
- Vehicles will not be left unattended during refuelling.
- All wash down of vehicles and equipment will take place in designated areas and wash water will be prevented from passing untreated into watercourses and will comply with EA's Pollution Prevention Guidance.

The Pollution Prevention Measures and good construction practices will ensure that any oils, hydrocarbons or hazardous materials stored on site will not leak onto the ground surface and thereby ensure that there is no pathway for contaminants to affect the water course.

5.8 Emergency Plan

A set of standardised emergency response procedures will govern the management of environmental and emergency incidents. All WDC management will be required to adhere to and implement these procedures and ensure that site operatives are familiar with the emergency arrangements for the site. This will be generally communicated in the site induction but also at the weekly meetings and as the site progresses.

The emergency procedure will contain 24-hour emergency phone numbers and the method of notifying local authorities, statutory authorities and the emergency services should an incident occur.

Practice drills will be scheduled throughout the construction process for both environmental and emergency incidents.

6.0 Pre-Construction Programme

This programme has been developed along with the project team and represents our carefully considered delivery plan.

The pre-construction stage of the project has been carefully considered, and it is vital that all preconstruction stages are completed according to plan to avoid any knock-on issues. A key consideration is the logistical requirements of the development as the

Construction Environmental Management Plan (CEMP)

project covers the footprint of the site so vehicle unloading/loading and storage must be very well planned.

During the early stages we will appoint the specialist contractors and commence design development of the packages with design responsibility. This will involve co-ordination and interfacing with the client and design team together with design approvals once information has been produced and submitted.

As an experienced Main Contractor, we recognise the role that we need to play in assisting the employer in terms of achieving value for money, cost certainty, a quality product and programme delivery.

From the very outset we will establish a highly motivated pre-construction team - all of them have already been working on the bid submission.

The final design and procurement programme will be compiled in consultation with the Design Team, as well as determining the level of design information to be issued and the approval of all Sub Contractor Design packages.

The Design will be monitored with fortnightly meetings with the design consultants and our preconstruction design team to monitor design milestones to enable that information is able to be passed to the procurement team. This will allow contractors with design responsibility time to carry out this work and aiding the smooth progress of the project into construction.

6.1 Procurement Strategy

To meet the construction activities within the WLP, our procurement team will strictly adhere to the subcontractor order schedule and the materials schedule. This has been developed by the Delivery Team into a schedule format to facilitate control and identifies the following activities:

- Tender analysis and recommendations for each package (based on tender stage enquiries.)
- Agreed dates for issue of construction issue status drawings and specifications
- Specialist design development and approval periods for the Sub Contractor Design packages
- Lead in and manufacture periods
- Start on site date

6.2 Programme Overview

Detailed programmes will be developed for the construction elements of the new homes. Detailed short-term programmes will be produced monthly by the site team.

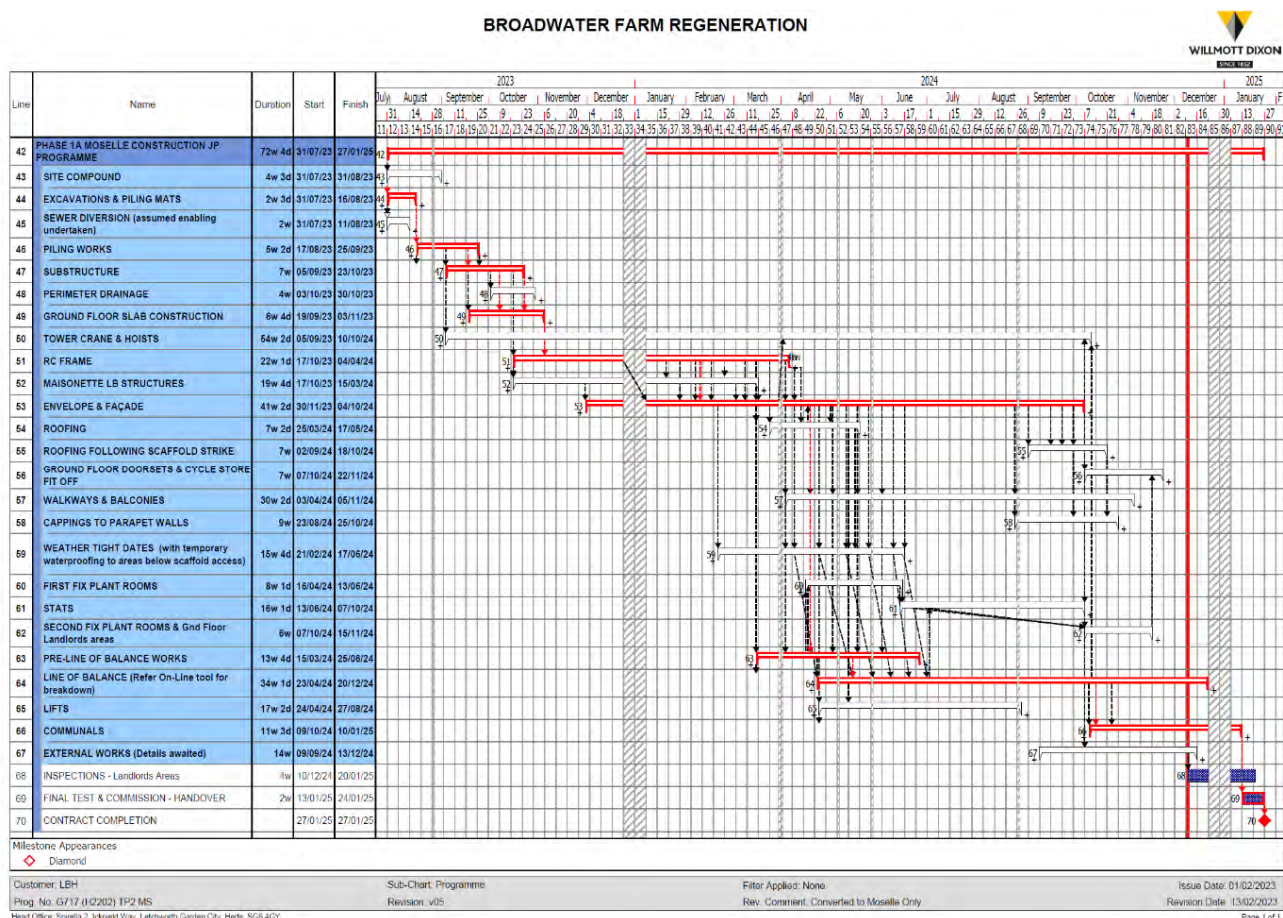
Lead in times for key elements for the construction and fit out works have been identified within the Tender Programme; these will be developed during the design development period.

Construction Environmental Management Plan (CEMP)

Milestones will also be incorporated into the procurement programme during the pre-construction period.

Key milestones have been considered and put into our Programme.

Below is an example of the detailed programme for the Phase 1 Moselle site:



7.0 Liaison with Local Neighbourhood

As a member of the Considerate Contractors Scheme, we take the possible disruption to the surrounding stakeholders very seriously. Prior to us starting on site our Community Team along with our Senior Management team, will develop a Community Liaison Plan. This plan will within detail a nominated liaison person to engage with residents to handle any raised complaints.

In agreement with the local authority communications team a newsletter will be formulated which can be released to all local stakeholders. This newsletter will

Construction Environmental Management Plan (CEMP)

introduce the team, discuss the proposed works with timescales and contain relevant contact details so that they can contact Willmott Dixon with any questions/complaints. These newsletters will then be published monthly online and/or significant stages of works are about to start.

Once works start on site, there will be a notice board attached on our hoardings which will hold a copy of the site layout/contact details (both the site teams daytime telephone number & out of office number). Each of phases main pedestrian access points will also display prominent signage so that the public may address the site team with any urgent queries.

We will also in conjunction with the LA team attend consultation meetings in line with the councils Code of Construction Practice for businesses, landowners and residents that border the project. We will do a 'You Said, We Did' to respond to issues raised and report back to attendees. This will allow us to explain what is happening on the project and allaying any doubts or concerns that they may have as phased works progress.

8.0 Enabling works

8.1 Hoarding

Hoarding will be erected around the perimeter of each of the phased work site areas and will act as the site boundary. This will protect people (especially children) from site dangers and the site from vandalism and theft. This hoarding will be a standard 2.4m height hoarding, plywood faced, timber framed, of a surface density of not less than 7kg/m² for normal security and noise limitation requirements.

Other types of fencing that maybe utilised are a fast fence metal panel fencing system and sheeting or 1.8m high anti-climb heras fencing covered in debris netting or the re-use of existing boundary treatments which are suitable such as 1.8m minimum high brickwork walls. In some areas during the construction phase, we may utilise heras type fencing that will be installed and clipped as per the manufacturer's recommendations. This may also be used towards the completion of the project as the main hoardings are dismantled to allow other works to proceed.

The provisions of the Health and Safety at Work Act 1974 will be followed in all cases.

Hoardings erected causing poorly lit walkways will have bulkhead lights fitted.

Gates in the hoarding will, as far as is practicable be positioned and constructed to minimise the noise transmitted to nearby noise sensitive buildings from the worksite or from plant entering or leaving the site.

Adequate security will be exercised to prevent unauthorised entry to or exit from the site.

Construction Environmental Management Plan (CEMP)

Site gates will be closed and locked when there is no site activity and site security provisions will be set in motion. Provision of alarms may follow subject to a risk assessment.

Notices will be displayed on all site boundaries to warn of hazards on site such as deep excavations, construction access, etc. Appropriate sight lines, visibility splays/mirrors and viewing windows will be maintained to ensure safety of both vehicles and pedestrians.

Hoardings will be finished in either a paint coating or with the customers graphics dependant on their location and value as public facing. The LA customer team will provide clear guidance to the project team for each of the phased work areas as to which elevations receive which treatment.

Below is an example of the proposed LA hoarding graphics:

Haringey Brand Focus



8.2 Survey, Testing & Ecology

Detailed information about the site ecology and environment has been explained above in Part A PLANNING AND PROCEDURES- Ecology & Environment.

- Asbestos fibres were identified by laboratory microscopy within three samples of Made Ground on site therefore, it is considered that there is the potential for further asbestos fibres to be encountered on site. Asbestos quantification testing where fibres were identified in the Made Ground in BH01, TP09 and TP13 has yielded results of <0.001% for each sample. These soils will be able to be disposed at a non-hazardous facility that accepts low quantities of asbestos. It is noted that visual segregation of the Made Ground containing asbestos fibres is not likely to be possible and frequent testing will be required by the contractor to accurately classify soil arisings for disposal purposes.

Watching brief should be employed during earthworks and construction works by the Contractor. Should areas of unexpected contamination be encountered or suspected, including asbestos, a qualified geo-environmental engineer should be informed and the risk associated with the contamination assessed.

- Ecological (Bats) – No bats or evidence of bats were found during the external inspection of all buildings on site. No bats were recorded emerging or returning

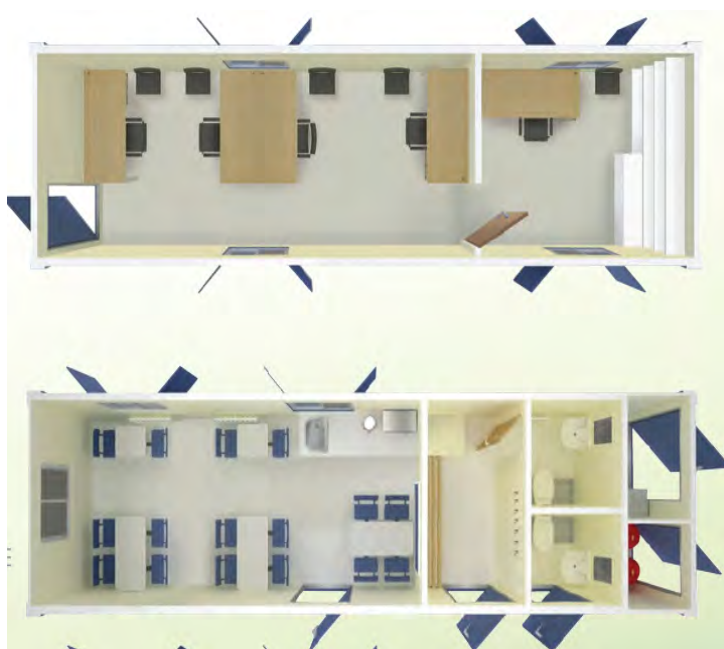
Construction Environmental Management Plan (CEMP)

to roost from buildings subject to survey. As such, bats do not pose a constraint to the proposed works and no further surveys are required. The development of the site is unlikely to impact the foraging resource and commuting route, provided sensitive artificial lighting is employed and habitat is enhanced on site. There were low levels of commuting foraging activity from minimum of three species of bat (common pipistrelle, Myotis sp. And noctule) recorded during the dusk survey.

- **Underground Services** – Underground services radar survey has been carried initially across the whole scheme area however, further localised GPR surveys will be completed at each phased site area in its entirety prior to breaking ground. This will ensure Willmott Dixon and in turn our supply chain partners are aware of the location of any existing services in the area.

8.3 Site Welfare

During the commencement stage to each of the phased work areas we will utilise a mobile Oasis type unit to provide welfare to the initial site team. This will be located within or adjacent to the site boundary area.



Construction Environmental Management Plan (CEMP)

Once the initial site set-up works are complete within the main construction area we will place our permanent welfare set up as listed in section 3.1. and shown below:



The welfare facilities will remain in the same location throughout the duration of the of individual phase until completion.

8.4 Demolition

Currently the project has not been engaged to undertake any of the planned demolition activities however should this situation change under instruction from the customer team then the follow will be applied by the scheme:

Before the demolition work starts the site team will apply for section 80 demolition Notice from the Local Authority Building Control team 6 weeks before the demolition work starts. Once the project receives Section 81 Demolition Consent from Building control demolition work will start as per the Risk Assessment Method Statements issued by Demolition contractor to the Willmott Dixon Project team. All necessary documents will be sent to building control to support the section 80 demolition notice. As stated in sec 5 control of noise: dust and Vibration. Real time monitoring system will install all thorough start of the project to monitor and control Noise, Dust and Vibration from Demolition work on site.

We will limit the impact of any Noisy works associated with the demolition by adopting a two hour on and two off strategy.

Construction Environmental Management Plan (CEMP)

8.5 Existing Carparks

The estate benefits from existing car parks that are for sole use and allocated to residents. No parking for project staff or operatives. WD will encourage use of public transport and car share as per the WD sustainable travel plan.

9.0 Sub-Structure works

Groundworks will commence with a site strip to the footprint of building and probing the ground to receive new piles to identify and remove any obstructions.

All plant and equipment will have the appropriate mufflers or silencers of the type recommended by the manufacturer. All plant and equipment will be used for tasks for which it has been designed for. Shut down all plant and equipment in intermittent use in the intervening periods between works or throttle it down to a minimum.

9.1 Excavation

All major excavation works will only be done in normal working hours.

All of the phased site areas will require ground rationalisation to clear & reduce levels and where applicable import fill materials to make up levels. The building footprints plus three meters in all instances will have made ground excavated to allow the installation of the designed pile mat formation, with materials removed from the site under strict Health, Safety and Environmental controls by Willmott Dixon.

On completion of the piling works further excavations will occur to facilitate the installation of designed pile caps and ground beam foundations.

Muck away Lorries will be arranged and controlled by the relevant site team and LA Highways team informed of any potential increase in vehicle movements beyond the CLP output tool.

If obstructions are encountered, we will stop works and review approach; adopt work methods that minimise noise; dust and vibration.

9.3 Load Bearing Piling Works

Installation of Load bearing piles will commence once the designed pile mat formation has been completed and UXO testing have been undertaken. The piling installation work will be carried out in a pre-agreed sequence and generally follow the order of pile diameter size in order to restrict the need to handle auger and reduce the amount of down time on site.

Once the load bearing piles are complete in the first section, excavation for the pile cap construction will commence. Additional piles outside of those for the building's

Construction Environmental Management Plan (CEMP)

footprint will be installed for the tower crane bases as required as soon as practically possible to enable the use of the tower crane during the ground and frame works.

9.4 Pile Caps & Beams

The pile caps and ground beams are created using reinforcement bars (rebar) to the structural engineer's design, shuttering and concrete. Once the rebar is in place, a shutter support is created before concrete is poured. The surrounding earth is then levelled around the pad/beam and these activities are repeated on the remaining sections until foundations are complete.

To prepare pile caps, we use hydraulic splitters to crack the top of the pile, which minimise the use of breakers.

9.5 Drainage

Below ground drainage will be installed concurrently with the foundations and prior to blinding and construction of the lower ground floor slab. As areas of lower ground floor concrete slab are completed the vertical elements can be constructed. Other vertical elements such as core walls and columns will be constructed using a proprietary formwork system or pre-cast elements.

The attenuation tanks are planned to all phased site areas will be installed where possible in the early works stages to ensure we have a controlled means of discharging any rainwater from the building during the construction phase.

9.6 Basement Slab and Ground Floor Slab

Once the first section of the drainage is complete, the lower ground floor slab can commence. The floor sections are created in the same sequence as the pile caps and ground beams with rebar and shuttering placed before concrete is poured. This sequence is followed for the remaining sections of the ground floor slab.

Once the first section of floor slab is complete, prefabricated vertical columns will be installed before support decking is erected to create a support platform for the floor above. Reinforcement bars will then be positioned as per the structural engineer's details and concrete is then poured and smoothed to form the floor slab.

All sections are linked (stitched) together with rebar and concrete and this sequence will generally follow for the entire concrete frame. Propping will be progressively removed when the concrete has reached the required strength and as instructed by the Engineer.

Vibratory compaction equipment shall be used in a mode which minimises the incident vibration at nearby residential and other sensitive properties.

Construction Environmental Management Plan (CEMP)

10. Super Structure works

10.1 Tower Crane

Assembly

The permanent tower cranes for the various phased work sites will be a mix of saddle and luffing jibs, dependant on the constants provided by the adjacent areas. The tower cranes will be provided with SMIE technology to avoid the incidence of over sailing of neighbour's land or buildings and collision with each other.

The erection of the tower cranes will require the mobile crane to be 'rigged' within an identified area and it is foreseen that in all instances this will be within the phased site boundary area. The operation will be covered with stringent Health, Safety and Environmental papers and be heavily monitored by Willmott Dixon for the duration of the works.

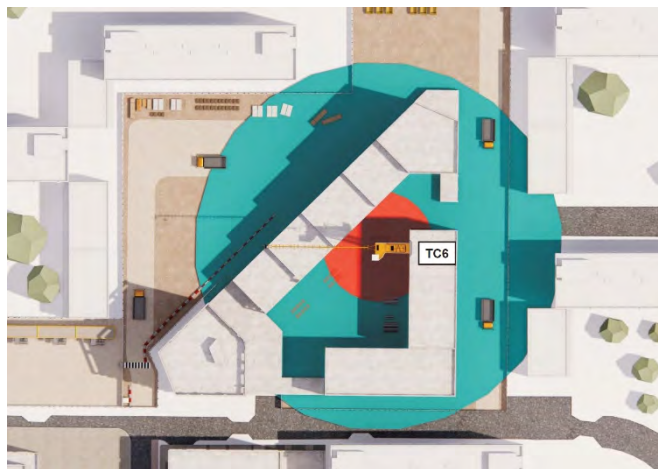
Once the tower crane is erected, works will be suspended and the mobile crane 'de-rigged' that evening. Presently the project doesn't foresee any requirement for any temporary closure of either footpaths or highways, but should circumstances change and this becomes a requirement, the project team will liaise, co-ordinated and gain approval with the LA Highways team.

Dismantle

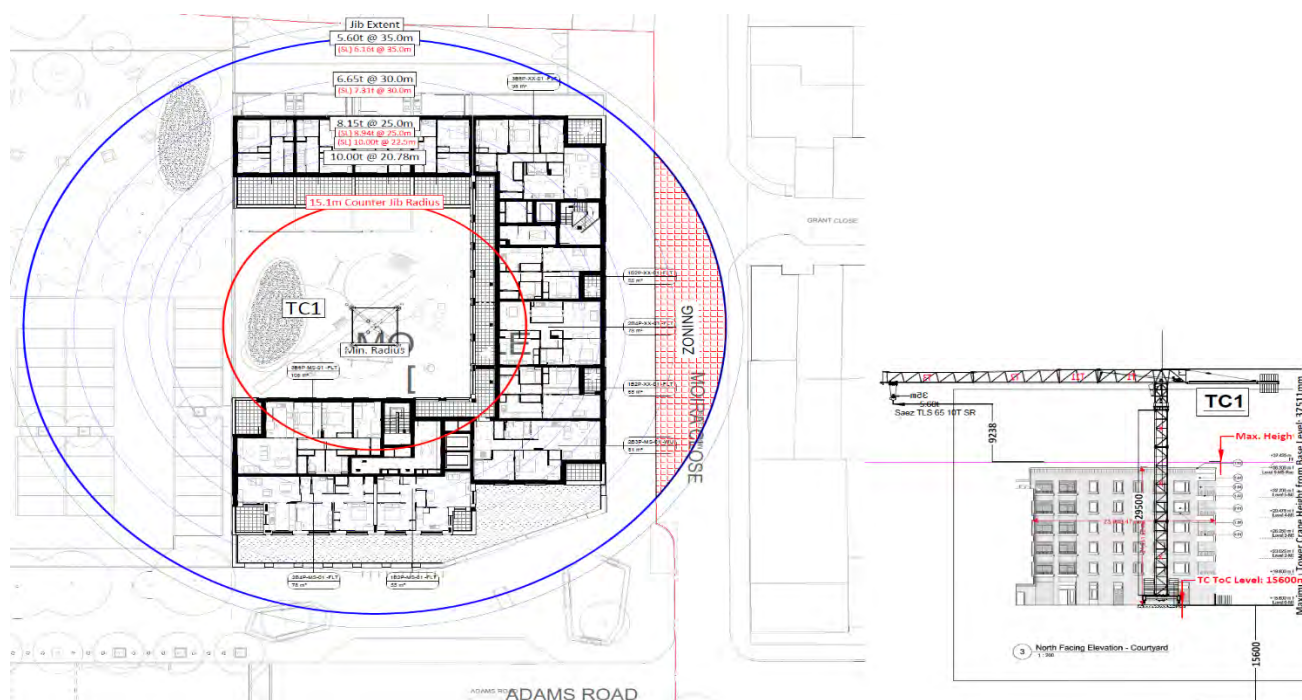
In all instances the project has planned the tower crane durations to cover the completion of main substructures works, including all envelope and façade treatments and roof related works. With the completion of the removal of external scaffolding the site teams will then begin the tower crane dismantle process. This will follow a similar procedure to that of the erecting process but in reverse and the site team will liaise once more with the LA Highways team.



Construction Environmental Management Plan (CEMP)



Example of tower crane plan for Phase 1 Moselle site



Construction Environmental Management Plan (CEMP)

11.1 RC Frame

During the construction of the frame, there will be a high volume of deliveries i.e. formwork materials, re-enforcement steel, along with concrete and concrete pump Lorries.

The super-structure is split into sections and each pour section will include the following activities:

- Precast concrete vertical columns and walls are installed in place as per the structural engineer's details.
- SFS prefabricated panels are installed between the columns.
- The windows and materials are craned onto the slab for that area of works.
- The decking can then be erected with the support of props to create a platform for the reinforcement bars to be positioned as per the structural engineer's details.
- Concrete is then poured and smoothed to create the upper floor.

The sections are then linked (stitched) together with rebar and concrete before the next floor can commence. The upper floors will follow a very similar pattern and once the concrete has achieved the required strength, the propping can be struck on the floors below.

We will endeavour to the start of concrete pours as early as possible within normal working hours to avoid overruns, will confirm the site cut off time for latest possible pour start, we will work with our concrete suppliers and RC Frame Supply chain partner to put protocol and measures in place to ensure that as far as practicable overruns on concrete pours do not occur.

If in the unlikely event of the over-run the project team will notify Environmental Pollution, Policy & Projects Team and liaise with customer team members.

11.2 In-Situ Construction

To create the core areas from Lower ground up to upper ground level, a rebar cage is created to the shape and sizing to the structural engineer's design. A shutter encasement is created around the rebar to enclose it. Once all in place, concrete is then poured into the encasement which creates the core area walls. Connection rebar is cast into the walls for the stairs. This sequence will continue at every level and until the core is complete.

11.3 Prefabricated Stair Construction

The stairs are precast and manufactured off site. These are delivered to site and lifted into place in line with the sequence of the RC frameworks. At this point scaffold handrail is introduced to allow the staircase to be used as vertical access / egress

Construction Environmental Management Plan (CEMP)

11.4 Façade

The façade, roof coverings and window installations will commence upon progression of the concrete frame structure, allowing the masonry works to safely progress below. The scaffold will be adapted and utilised for access to fix each component and the crane and goods hoists will be utilised for the transportation of associated materials.

Installation of the windows, SFS framing, followed by EPDM. With the windows in place; breathable membrane is applied to the outer skin and is used to increase air and water resistance and provides better protection against water and moisture intrusion.

The façade finishes with a brickwork outer skin. Generally, once the breathable membrane is applied externally, an insulation layer is applied to the building to insulate the external walls before the brick and cladding grids are installed.

The finishes of the balconies and terraced areas will be decking/paving with metal balustrades.

11.5 Roof

The roof is formed directly onto the in-situ poured concrete slab with waterproofing provided by an IKO system with green roof surface treatment installed upon this. In all phased works areas the main flat roof areas have been designed and designated to house an array of MEP plant (air source heat pumps to PV panel installations).

The external scaffold will be installed to provide initial edge protection while the parapet pre-cast sections are completed. Both methods will provide a safe means of access to high level work areas on all structures.

12.0 Internal Works/Fit-Out Works

The commencement of the internal works will start once the building is watertight. Each element of the fit-out works will be inspected by the WDC site team, with QD checklists being completed prior to progressing on to the next stage. For example, partitioning will be inspected and signed off prior to fixing door linings and plasterboard. This discipline will ensure that a high-quality finish is achieved throughout the project.

Maintaining a clean and tidy site is essential during the project. Willmott Dixon will ensure that each and every work area is cleared of rubbish and waste materials both during and upon completion of each trade's works.

12.1 First Fix.

Plot duct work, internal walls boarded to one side, screeding, first fix plumbing, first fix electrics, plasterboard to walls including insulation, NHBC / Building Control sign off

Construction Environmental Management Plan (CEMP)

whilst ceiling is visible, close ceilings, plastering including drying time with mist coat finishing the first fix activities.

12.2 Second Fix.

Second fix plumbing, second fix carpentry including any boxing and any wood flooring, the installation of the kitchen, tiling to the wet room, any pre-decoration snagging which is needed, painting and decorating can then commence.

12.3 Final Fix

The installation of appliances to the kitchen and then can start with the final fix plumbing, final fix electrics, test and commissioning to finals, air and sound testing to the plots, floor finishes, builders clean, mastic, Willmott Dixon snag / de-snag, and the final activity will be plots complete and ready for bulk core handover.

12.4 Key Stage Sign Offs

Key stage sign offs will be used throughout the process to ensure the right quality is being achieved and controlled. Trades will not be allowed to move on to the next task if the sign off is incomplete and/or works are outstanding. Subcontractors' payments will also be generated when key stage sign offs are achieved, which also helps keep momentum. This will be carried out with use of Willmott Dixon's Quality Delivery checklists.

A critical milestone is when heat and power are available as only then can the final decorations commence. We insist on this to ensure that decoration occurs in the correct environment to ensure a quality finish.

12.5 Testing & Commissioning

This is clearly an important phase of the scheme for Willmott Dixon, the Professional Team and the Customer. We have our in-house and external specialist consultant team who will manage and oversee the commissioning process of the scheme. The successful sign off and completion of all systems will be our main focus, with a dedicated finishing supervision assigned to ensure they are defect free when handed over.

Early engagement and programming of the stat companies will be a key factor in the completion of the project.

A commissioning and handover plan that begins in the earliest stages of a project leads to an orderly and effective succession of events. A complete plan identifies all equipment and systems requiring commissioning, with performance testing methods to be used for each component, along with parameters for acceptable performance. The documentation will include these items:

Construction Environmental Management Plan (CEMP)

- All equipment submittals required supporting the commissioning process
- requirements for the training of operations and maintenance personnel
- expected owner/user manuals
- sample formats for reports and other documentation.
- This will go a long way to ensure everyone is happy with the completed system and fully understands the principles and working ethos of the scheme.

This plan will be instigated with an initial eight-week notice to the customer that we are ready to hand them the project.

This is followed by a four-week notice to the customer that project will be handed to them on that date.

12.6 Externals

Upon completion of the external envelope and after the striking and removal of scaffolds, the remaining external works within close vicinity of the build will commence. Although these works will generally be undertaken with limited mechanical plant, measures will be implemented to ensure plant is well maintained and fitted with appropriate silencers or mufflers if required.

Final connections of all incoming utility services into each home are via underground ductwork. Reinstatement of any excavations for the services will be inspected and signed off prior to commencement of any finishes over the top.

Masonry material will be cut utilising wet cutting techniques and dusty roads etc. will be wetted down prior to street/ road cleaning.

Detailed sequencing of works in this period to be reviewed in advance to minimise any possible disruption.

12.7 Practical Completion & Handover

Willmott Dixon will inspect works at varying stages and rectify any defects to all homes prior to offering them for the customers representative to inspect. Willmott Dixon will agree inspection and handover protocol with the customer prior to these inspections starting. The Project Manager or his delegated assistant will accompany all visitors during inspections to agree any actions should any further defects be found. All areas will be lit for the inspections.

Due to the nature of the project, it is envisaged that there will be gradual inspections and lock up of homes. Once all areas are complete the project will be handed over each phase in its entirety.