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5.55
Responsible Site Management
A Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor, which will include details of relevant environmental management controls necessary for environmental protection during the construction works. This will follow best practice guidelines.

5.56
The CEMP will include:

- Restrictions and targets for specific work activities in order to minimise environmental effects, including disruption and disturbance to local residents;
- Details of the means by which appropriate environmental monitoring, record keeping and reporting will be managed to ensure the above targets are being met;
- Procedures for dealing with queries and complaints from the public. A nominated individual will be named at the site entrance with a contact number;
- Procedures to deal with necessary 'abnormal' works that may result in deviation from the agreed procedures and targets; and
- Provision for a programme of regular environmental audits and reviews at key stages in the construction programme.

5.57
Consideration has also been given to LBC's Guide for Contractors Working in Camden to make sure that disturbances due to noise, vibration, dust and smoke arising from demolition and construction work on all building sites within the Borough, including the public highway, are kept to an acceptable minimum level without restricting the contractor unnecessarily.

5.58
UKCMRI will appoint a contractor to act as the Principal Contractor, who will develop and implement a Demolition and Construction Method Statement (DCMS). The DCMS will be a contractual document outlining the different procedures to be undertaken in order to complete the various works. Individual subcontracts will incorporate requirements for environmental control, based on good working practices, such as careful programming, resource conservation, adhering to health and safety regulations and quality procedures. In this way those involved with the demolition and construction phase, including subcontractors and site management, will be committed to adopt the agreed best practice and environmentally sound methods.

5.59
The DCMS will be prepared in consultation with the LBC. The subcontractors will be required to demonstrate how they will meet the targets of the DCMS and how the potential impacts will be offset, reduced or minimised.

5.60
To further ensure that sustainability principles are abided by during the demolition and construction phase, UKCMRI will require the contractor to comply with the Considerate Constructors Scheme (CCS) and to go beyond best practice. By signing the CCS the contractor will agree to abide to the following principles:

- Be Considerate;
- Be Aware of the Environment;
- Ensure Site Cleanliness;
- Be a Good Neighbour;
- Be Respectful to Others;
- Ensure Everyone is Safe;
- Be Responsible; and
- Be Accountable.

5.61
Construction impacts on the environment will be minimised by specifying all site timber as legally sourced and at least 80% as responsibly sourced and by implementing best practice measures, such as:

- Monitoring, reporting and setting targets for CO_2 or energy arising from site activities;
- Monitoring, reporting and setting targets for water consumption arising from site activities;
- Implementing best practice policies in respect of dust pollution arising from the site;
- Implementing best practice policies in respect of water (ground and surface) pollution occurring on the site;
- Contractor to implement an environmental materials policy, used for sourcing of construction materials to be utilised on site; and
- Contractor to operate an Environmental Management System.

5.62
Finally, all relevant contractors will be required to investigate opportunities to minimise and reduce the use of energy and water, such as:

- Use of alternatives to diesel/petrol powered equipment where possible;
- The incorporation of sources of renewable energy to offset the use of main utilities;
- Selection and specification of energy efficient plant and equipment;
- Implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both on-site and within site offices;
- Use of recycling water systems such as wheel washes; and
- Monitoring of energy and water consumption of the demolition and construction phase, either through sub-metering or utility bills, to allow comparison against industry accepted good practice benchmarks.

5.0 Sustainability Assessment

5.63
Noise
Potential noise impacts from the Proposed Development are discussed in the Environmental Statement (ES) Chapter 10: Noise and Vibration and include:

- Impact of noise and vibration from construction activities on nearby receptors;
- Impact of changes in traffic noise as a result of the Proposed Development; and
- Operational noise and vibration emissions from the Proposed Development affecting nearby receptors.

5.64
The noise generated during the construction phase will be minimised by following best practice measures and the advice provided in LBC Guide for Contractors Working in Camden, such as:

- Using best practicable means to reduce negative effects by controlling noise and vibration which may cause offence to the local community or environment;
- Wherever possible, providing fencing or hoarding to reduce the amount of noise that escapes from the site;
- Wherever possible, fixed items of construction machinery to be electrically powered rather than powered by diesel or petrol. Where this is not practical, providing acoustic enclosures;
- Shutting down machines when they are not in use or throttling them down to a minimum;
- Fitting vehicles and machinery with effective exhaust silencers;
- Compressors to be 'sound-reduced' models fitted with properly lined and sealed acoustic covers kept closed whenever the machine is in use. Also, pneumatic percussive tools to be fitted with the most effective muffler or silencer available;
- Using equipment which breaks concrete by pressure, as far as is reasonably practical;
- Using hydraulically operated or vibratory methods to drive and extract sheet piling, as far as is reasonably practical;
- Where practical, using hydraulic or electrical powered rotary drills and bursters to remove hard materials;
- Placing noisy machinery and equipment as far away as practical from residential or other noise-sensitive properties and enclosing it in appropriate barriers;
- Taking care when loading or unloading vehicles, dismantling scaffolding or moving materials to reduce the noise;
- Carrying out work to be carried out within the permitted hours;
- Appropriate coordination for the arrival of delivery vehicles at the site; and
- Educating all contractors on site to avoid unnecessary noise from their activities.

5.65
Furthermore, the contractor will use techniques least likely to cause vibration or impact damage to the surrounding residential and commercial properties. The contractor will also carry out structural vibration monitoring and structural surveys to monitor and control the effects.

5.66
Noise generated during the operational phase and associated impacts have also been considered:

- Building services noise and vibration;
- Loading bay noise and vibration; and
- Operational traffic noise.

5.67
Any adverse impacts of noise will be minimised by effective layout and building design, using measures at source or between source and receptor (including choice and location of plant or method, layout, screening and sound absorption) in preference to sound insulation at the receptor, wherever practicable.

5.68
Specifically, building services plant will be designed and installed to meet appropriate limits. Appropriate internal noise level requirements will be achieved using the following façade insulation scheme:

- Double glazed windows; and
- Mechanical ventilation.

5.69
Finally, the glazing schemes and ventilation systems will be designed (during the detailed design phase) to achieve the internal noise level requirements for the proposed uses.

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5.70
Air Quality
Air quality baseline conditions and the potential impacts to local air quality attributed to the Proposed Development, both at operational and demolition/construction stage are discussed in the ES Chapter 9: Air Quality. Emissions to air associated with the Proposed Development are anticipated to occur from:

- Exhaust gases from on-site demolition/construction plant and equipment;
- Dust generation during earth moving and demolition/construction;
- Additional road traffic attributed to the demolition/construction and operational stages of the Proposed Development; and
- Combustion gases associated with the heating and power plant, and non-combustion gases from the BRF and chemistry laboratory and fume cupboard exhausts.

5.71
LBC feedback on control and minimisation of NO_x, particulate matter (PM10), CO_2 emissions during construction work has been considered. As such UKCMRI will prepare and adopt a method statement as part of CEMP to minimise gaseous and particulate matter emissions generated during the construction phase.

5.72
It is anticipated that emissions to air during the demolition and construction phase will be associated with road traffic movements, construction equipment and vehicles and earth moving and construction operations (construction dust). The construction phase will be carried out in accordance with LBC Best Practise Guidance Note and Guide for Contractors Working in Camden. Control of dust and emissions from construction will be included in the method statement, such as:

- Techniques to control PM10 and NO_x emissions from vehicles and plant:
  - Using low emission plant fitted with catalysts, diesel particulate filters or similar devices;
  - Maintaining plant, with routine servicing;
  - Avoiding the use of diesel or petrol powered generators and using mains electricity or battery powered equipment;
  - Using ultra-low sulphur non-road mobile machinery, fitted with appropriate exhaust after-treatment such as catalysts, diesel particulate filters;
  - All construction vehicles to comply with the Euro 4 emissions standard and where possible use low emission fuels; and
  - Placing plant and vehicles away from the closest receptors or housing in enclosed environments where possible.
- Techniques to control dust emissions from construction and demolition:
  - Keeping site fencing, barriers and scaffolding clean using wet methods;
  - Providing easily cleaned hard standing for vehicles and use wet sweeping methods;
  - Providing wheel-wash facilities near the site exit;
  - Inspecting haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
  - Routinely cleaning public roads and access routes using wet sweeping methods;
  - Signposting maximum speed limits of 10 mph on surfaced haul routes and work areas;
  - Ensuring all vehicles carrying loose or potentially dusty material to or from the site are fully sheeted;
  - Storing materials with the potential to produce dust away from site boundaries; and
  - Sheeting, sealing or damping down stockpiles of excavated material held on site.
- Air Quality Monitoring:
  - Monitoring of PM10;
  - Using trigger action level for high PM10 concentrations. An on-site alert system to be specified to notify appropriate staff that the trigger action level has been reached; and immediate and appropriate measures to be taken to rectify abnormal particulate emissions;
  - Detailing any alert to be sent out to LBC Air Quality Officer;
  - Regular reporting to LBC summarising 24 hour average PM10 concentration, date and time of any breach of the trigger action level, prevailing wind direction and details of the cause of elevated dust emissions and mitigation measures; and
  - Setting-up a 24-hour phone hotline so that residents can complain about high dust or PM10 levels directly to the developer.
- Techniques to reduce CO_2 emissions from construction vehicles:
  - Contractors' vehicles to adopting 'green fleet management practices' that will result in a 10% reduction in tail-pipe CO_2 emissions. This could include the use of fuel saving equipment in vehicles, accreditation with Freight Operator Recognition Scheme (FORS) or Safe and Fuel Efficient Driving (SAFED) and use of low carbon vehicles such as hybrid, electric and bio-methane.

5.73
The impacts of road traffic emissions associated with the completed development are predicted to be negligible. As such no mitigation measures have been deemed necessary.

5.74
The Chapter also indicates that mitigation measures were incorporated into the combustion, BRF and chemistry emission stack sources during the design stage following extensive air quality dispersion modelling and consultation with LBC. In summary, the mitigation measures include:

- Appropriate design of the flues to ensure adequate dispersion of pollutants and selection of equipment regarded as Best Available Technology (BAT);
- Natural gas firing of the combustion plant (except under gas shortage or emergency situations);
- Locating the combustion source stacks in the southeast corner of the Proposed Development, which modelling showed minimised the predicted impact on nearby residents;
- Low NO_X optimisation of the CHP engine, including use of a digital combustion control system and specially modified heads;
- Selection of low NO_X boilers;
- Regular inspection of the machinery, operation to the manufacturer's instructions, and ensuring that equipment is well maintained;
- Firing of each generator in turn during maintenance testing;
- Maximising the volumetric flow rate of the BRF, chemistry and boiler exhausts, reducing the concentration of the gases; and
- Inclusion of a High Efficiency Particulate Air (HEPA) filter on the BRF exhausts.

5.75
To reduce the emissions of refrigerants to the atmosphere arising from leakages in cooling plant, refrigeration leak detection systems will be specified.

5.76
All work on classified biological agents will be carried out within the appropriate safety cabinets which utilise HEPA filters.

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5.77
According to the Environment Agency (EA) Technical Guidance, an odour nuisance will only occur should odour be detectable for more than 2% of the hours in a year (i.e. 175 hours). This criterion will not be exceeded by UKCMRI.

5.78
The provision of secure cycle parking and the high accessibility of public transport will facilitate reduction in car use by occupants, with a reduction in the associated exhaust emissions.

5.79
Additionally as advised by LBC Air Quality Officer, UKCMRI will provide an automatic PM10/PM2.5 monitoring station, which will integrate into the Council's existing local air quality network. The air pollution data from this monitor will be made available to the public through LBC's website. The PM10/2.5 monitor will provide a valuable platform for developing education work with UKCMRI and the Council on the links between air pollution and health. UKCMRI will fund the operation and maintenance of the monitor as well as data management.

5.0 Sustainability Assessment

5.80
Water Quality, Flood Risk and Sustainable Urban Drainage
Mitigation measures to minimise water (ground and surface) pollution occurring on site during the construction and operational phases will be implemented.

5.81
A number of measures will be employed during demolition and construction to prevent the release of suspended sediments including:

- Cut-off ditches or geotextile silt-fences will be installed around excavations or exposed ground and stockpiles to prevent uncontrolled release of sediments from the site;
- Properly contained wheel wash facilities will be used where required, to isolate sediment-rich runoff and direct it to the foul drainage network;
- Earth movement will be controlled to reduce the risk of construction silt combining with the site run-off;
- Site access points will be regularly cleaned to prevent build up of dust and mud; and
- Silty water abstracted during excavations will be discharged to settlement tanks. Cleaned runoff can then be reused for suitable non-potable uses, such as dust suppression, and the excess water discharged through the existing combined sewer drains. If space for settlement tanks is limited, silty water may need to be stored and removed from site by tanker and disposed of at a suitably licensed location. A discharge consent detailing volumes and rates of discharge will need to be agreed with Thames Water Utilities Limited (TWUL) prior to the commencement of works.

5.82
Measures will also be taken to protect controlled waters and the TWUL combined sewer drains from the release of oils and hydrocarbons. These measures will comprise:

- Oils and hydrocarbons will be stored in designated locations with specific measures to prevent leakage and release of their contents, including the siting of the storage area away from drainage system and on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents. Valves and trigger guns will be protected from vandalism and kept locked when not in use;
- TWUL will be consulted on the installation of an oil interceptor at points where site surface water runoff enters the combined sewer system surrounding the site;
- Wherever possible, plant and machinery will have drip trays installed beneath oil tanks/engines/gearboxes/hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator. Refuelling and delivery areas will be located away from surface water drains; and
- An Emergency Spillage Action Plan will be produced, which site staff will have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material.

5.83
A number of precautions will be taken on site to reduce potential for impact from on-site concrete and mortar mixing. These include:

- The majority of concrete used to will pre-mixed and delivered from an off-site source, thereby reducing the need to mix concrete on-site and reducing the creation of alkaline waste water;
- Wherever possible, the mixing and handling of wet concrete will be undertaken in designated areas, away from surface water drains; and
- A designated area will be used for any washing down or equipment cleaning associated with concrete or cementing processes and facilities will be provided to remove sediment prior to disposal into the foul sewer.

5.84
As part of the completed development, a potential source of pollution, which could have adverse impacts on the water environment, would be the requirement for onsite storage of 300,000 litres of diesel. Appropriate mitigation measures relating to the design and installation of any underground storage tanks have been agreed with the EA that will minimise the significance of a potential leak.

5.85
With regard to flooding, the site lies within the EA's indicative Flood Zone 1 (low risk of flooding) for fluvial and tidal flooding. Refer to ES Chapter 12: Water Resources for further detail.

5.86
LBC has been subject to a number of surface water flooding events as a consequence of the capacity of sewer networks being reached and the subsequent surcharging of manholes and gullies. Although the site was not impacted by the 1975 and 2002 events and it is not listed as 'at risk' by the Council, a proactive approach has been taken with regard to the management of surface water runoff.

5.87
The underlying principle of the proposed drainage strategy for the Proposed Development is to provide measures which will form a sustainable drainage system. Surface water attenuation is prioritised to reduce the flow rates from the site to the public sewers as much as is reasonably practicable.

5.88
The drainage strategy for the site has been developed in accordance with the EA and London Plan requirements aiming to adopt the most sustainable solution for the site.

5.89
Surface water drainage opportunities considered included:

- Drainage to the ground

  Drainage to the ground can be considered only when:

  - The surface water can sufficiently infiltrate the ground from the hardstanding areas;
  - Ground strata do not increase the risk of contaminating the groundwater;
  - Drainage will not affect the quality of the groundwater especially within source protection zone areas;
  - Infiltration will not affect the stability of any new or existing structure;
  - Ground level differences will not increase the flood risk downstream on or off site.

  Ground investigation works and published information confirmed that the permeability of the ground is very poor due to a thick clay layer. Therefore, drainage to the ground is not a feasible option for this site.

- Drainage to a watercourse

  The nearest watercourse to the site is the River Fleet. The River Fleet is a culverted watercourse in this location and is classified as storm relief drainage by TWUL. Therefore connection to this watercourse must be avoided, as it works as relief drainage at this location. Additional flows from new developments can affect the operation of this sewer in high storm events. Drainage to a watercourse is therefore not viable.

- Drainage to the public sewers

  TWUL sewer records show that there are three combined sewers near the site. One is in Brill Place, the second crosses the east part of the site and the third is in Ossulston Street. Site investigation works confirmed that the previous development on site used to drain to the public sewer that crosses the site and the sewer in Brill Place. In addition, TWUL confirmed that no drainage will be permitted to the public sewer in Ossulston Street, as there are no existing connections from the site to this sewer. Therefore, drainage from the new development will discharge to the public sewers in Brill Place and to the public sewer that crosses the site to the east of the Proposed Development.

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Surface water to the public sewers must be reduced as much as reasonably practicable without exceeding existing discharge rates. Preliminary calculations showed that surface water can be attenuated to 40 l/sec for a 1 in 30 year storm event (including allowance for climate change). This rate has been welcomed by the EA and TWUL, as it is near the greenfield run-off rate from this site. Excess water will be temporarily accommodated on site in SUDS such as tanks.

5.90
SUDS will be used for attenuation on site, storing surface water temporarily from the new development and releasing it to the public sewers and the watercourse slowly.

5.91
Two SUDS elements will be provided on site – brown roofs and geocellular attenuation. There are two roof zones at level 5 and 6 where a brown roof is feasible and so the provision will be limited to these areas. Three underground attenuation tanks will be provided to attenuate the discharge to the public sewers (to a total rate of 40 litres/sec). These tanks will provide quantity control and on-site run-off management. The quality control will be provided by the brown roofs and silt traps in the external gullies and channels.

5.92
Other SUDS devices such as soakaways or filter trenches are not feasible due to the underlying soils, whilst the congested nature of the site means that larger SUDS devices such as ponds or wetlands are not viable either. Therefore, the Proposed Development is providing both of the only two practical SUDS options for the site.

5.93
To further mitigate the residual risk of flooding, a maintenance manual will be produced, providing details on the drainage structures and the persons responsible for inspecting and maintaining them.

5.94
To reduce the potential for silt, heavy metals, chemicals or oil pollution to contaminate natural watercourses from surface water run-off from buildings and hard surfaces, oil separators will be specified in areas that are or could be a source of watercourse pollution, i.e. vehicle manoeuvring areas, car parks, waste disposal facilities, delivery facilities or plant areas.

5.95
The chemical/liquid gas storage areas will be designed in accordance with the recommendations of the EA's Pollution Prevention Pays Guidance.

5.96
A comprehensive and up-to-date drainage plan of the site will be made available for the building/site occupiers.

5.0 Sustainability Assessment

5.97
Microclimate
The Proposed Development will aim at mitigating any negative microclimate impact.

5.98
A microclimate/wind analysis has been undertaken that assessed the likely effects of the Proposed Development on the local wind microclimate. In particular, it considered the potential effects of wind on pedestrian comfort and safety around the Proposed Development and summarised the findings of a wind tunnel test. Refer to ES Chapter 15: Microclimate for further detail.

5.99
The analysis concluded that during construction, wind conditions are expected to be suitable for standing/entrance use during the windier season (i.e. winter). As construction of the Proposed Development proceeds, the wind conditions at the site would gradually adjust to those of the completed development.

5.100
For the operational phase of the Proposed Development, the wind tunnel test indicated that wind conditions were suitable for the intended pedestrian usage.

5.101
The analysis also noted that planting and other landscape enhancements would generally increase shelter within the Proposed Development compared to the wind conditions, particularly when the trees and plants are established and in full leaf.

5.102
To minimise night time light pollution, the external lighting design is in compliance with the guidance provided in the Institution of Lighting Engineers (ILE) Guidance Notes for the Reduction of Obtrusive Light (Ref. 29). All external lighting (except for safety and security lighting) will be able to be automatically switched off between 2300hrs and 0700hrs. The light pollution assessment, presented in ES Chapter 16: Daylight, Sunlight, Overshadowing and Light Pollution, identified that the light levels from the Proposed Development will be within appropriate recommendations.

5.103
The potential impact of the Proposed Development on daylight, sunlight and overshadowing were also assessed in relation to adjacent residential buildings and amenity areas outside of the development site.

5.104
No significant anticipated impacts on daylight, sunlight and overshadowing were identified during the construction phase of the Proposed Development. For the operational phase, the impact of the Proposed Development on each residential property surrounding the site has been considered. Specifically, the following were considered:

- The potential daylight, sunlight and overshadowing impacts of the Proposed Development compared against the existing condition; and
- The potential light pollution from the Proposed Development to the residential properties bordering the site.

5.105
In regard to daylight, the analysis showed that in general those habitable rooms in the surrounding properties for which the daylight potential is not constrained in the existing situation will retain levels of daylight which are broadly in accordance with the Building Research Establishment (BRE) recommendations.

5.106
Those rooms for which the daylight potential is inhibited in the existing situation will inevitably experience more noticeable reductions, but in absolute terms retain adequate daylight for a location of this type. There are a few habitable rooms which fall slightly further below the BRE recommended levels, but these rooms still retain sufficient levels of daylight in absolute terms to be considered acceptable in the context of the development and the dense urban environment in which it is situated.

5.107
In regard to sunlight, almost all of the habitable residential windows which are relevant for sunlight analysis meet the BRE Guidelines recommendations. Those windows which do fall short of the recommended levels generally do so by a small margin or serve rooms such as bedrooms which the BRE Guidelines acknowledge are less important in relation to sunlight.

5.108
In relation to permanent overshadow, the analysis showed that the Proposed Development does not result in any permanent shadow to the open space to the north of the site, located between Purchese Street and Coopers Lane. In relation to transient overshadow, the receptors identified were the park and the consented Kings Cross Central development to the east. The analysis showed that any shadows from the Proposed Development will have a limited impact to either of these areas.

Figure 5-6. Wind Tunnel

5.0 Sustainability Assessment

5.109
Indoor Comfort
The Proposed Development has been designed to allow for natural lighting and views out. An internal atrium will be provided as part of the proposed design, which will enable natural light to penetrate into the Proposed Development.

5.110
Glare control fittings will be specified in the office space, meeting rooms, training/teaching facilities, seminar rooms, write-up areas and workshops, providing the further benefit of reducing solar gain, and therefore reducing the energy required for cooling.

5.111
All the Proposed Development's lighting (internal and external) will meet the appropriate luminance levels recommended by CIBSE, and high frequency lighting ballasts will be installed on all fluorescent lights to prevent flicker. Lighting will be appropriately zoned and occupant-controlled in the meeting rooms, security/BMS/fire control, training/teaching facilities, seminar rooms, conference suite/lecture theatre, restaurant/seating, and workshops. Logistic and receiving areas, entrance, atrium, and office spaces will be provided with occupancy sensors, which will allow for a more energy efficient management of the lighting systems compared to users' controls. The lighting control in the laboratories will have local control, which will be on a timed arrangement – at a pre-determined time the lighting would be dimmed prior to being switched off. Any laboratory user will be able to override this at the local control switch to bring the laboratory lighting back up to 100%.

5.112
To reduce the risk to health associated with poor indoor air quality, the location of air intakes and outlets will be positioned over 10m apart to minimise recirculation, and intakes will be located over 20m from sources of external pollution, such as roads.

5.113
Thermal comfort levels will be assessed to evaluate appropriate servicing options.

5.114
To ensure the building services are designed to reduce the risk of legionellosis, all water and Heating, Ventilation and Air Conditioning (HVAC) systems will be designed to meet the requirements of Health and safety Executive's (HSE) Approved Code of Practice and Guidance, L8.

5.115
Office space, meeting rooms, training/teaching facilities, seminar rooms, conference suite/lecture theatre, write-up areas, and workshops will achieve adequate indoor ambient noise levels and appropriate airborne sound insulation levels; whilst training and teaching facilities and conference suite/ lecture theatre areas will achieve appropriate reverberation times. A suitably qualified acoustician will undertake pre-completion acoustic testing.

5.116
Fume cupboards and microbiological safety cabinets will be designed in accordance with the appropriate British Standard (BS EN 14175-2 and BS EN 12469: 2000).

5.117
The design of the laboratory ventilation systems will be in compliance with best practice guidance. UKCMRI is also committed to design the laboratory ventilation system in compliance with the best practice design guidance set out in the Management Design and Operation of Microbiological Containment Laboratories ACDP.

5.118
With regard to lone working, this is an operational and management issue that will be defined by UKCMRI under its operational and management procedures, with a health and safety risk assessment carried out. Measures currently taken into consideration to address health and safety issues include a wireless alarm call device to be worn by scientists if lone working does occur, which can be linked to security.

5.119
To maximise indoor comfort as much as practicable (considering the nature of the work undertaken), the design of the laboratory areas has considered:

- The potential for natural light to these areas as well as the provision of views out from them;
- The provision of physical separation provided between laboratories and office or write-up areas, where required, to comply with the health and safety standards; and
- The provision of informal interaction areas with comfortable seating and tea or coffee facilities.

5.120
All Mechanical and Electrical (M&E) plant will be easily accessible for maintenance. An M&E Maintenance & Access Strategy has been produced to identify the proposed access routes at concept stage for M&E installation, maintenance and replacement of the major items of mechanical, electrical and public health M&E equipment installed to serve the Proposed Development.

5.121
As the contractor completes its procurement process, the equipment schedules will be updated to reflect the appropriate maintenance strategies which will have to be in place for the safe and efficient operation of plant and equipment.

5.122
To ensure the efficient and safe operation of all plant, commissioning will be carried out in line with current best practices and an appropriate representative of UKCMRI will be appointed to monitor pre-commissioning, commissioning and where necessary, re-commissioning. A specialist commissioning manager will be appointed for complex systems such as air conditioning, mechanical ventilation, BMS, renewable energy sources, microbiological safety cabinets and fume cupboards, cold storage enclosures and refrigeration plant. Seasonal commissioning will also be carried out, during at least the first year of occupancy.

Figure 5-7. Atrium

5.0 Sustainability Assessment

5.123
Flexible, Inclusive and Secure Design
Given the dynamic nature of research, the Proposed Development will be versatile and adapt quickly to changes in research methodologies, technology, equipment, and processes so as to facilitate flexibility and future growth. To successfully achieve the flexibility goal, UKCMRI will respond to current and future needs in terms of space, environmental control, support services, function, security, and energy conservation.

5.124
To maximise the long-term usability of the facility, an approach which balance fixed elements of infrastructure with movable elements that are readily reconfigurable by the user in response to changes in scientific processes, equipment and staffing will be implemented.

5.125
The laboratory space will adapt to different uses without requiring physical changes to the construction. Modular and adaptive laboratory furnishings comprised of components and accessories that are easily adaptable and interchangeable will be considered. To allow for adaptability, building services will be uniformly and repetitively distributed to each laboratory and designed to provide simple extension into the laboratory without disruption to adjacent modules.

5.126
Additionally, the Proposed Development will provide flexibility for converting some of the non-laboratory spaces such as offices, support areas or storage rooms into laboratory or vice versa as changes are needed. Sufficient ventilation air throughout the non-laboratory space will be provided in order to allow easy conversion between non-laboratory and laboratory space. Although this strategy represents a first cost premium, it will be a key feature in achieving the goal of highly flexible and changeable laboratories.

5.127
The Proposed Development has been designed to meet the principles of inclusive design, adopting the principles of Accessible London: Achieving an Inclusive Environment (Ref. 30), e.g.: can be used safely and easily by as many people as possible without undue effort, separation or special treatment; offers the freedom to choose and the ability to participate equally in the Proposed Development's mainstream activities; and values diversity and difference.

5.128
Due the nature of the work and related health and safety issues, staff with certain disabilities such as severe visual impairments or wheelchair users, may not be able to access all facilities within the Proposed Development.

5.129
The design has followed good practice guidance particularly in Building Regulations Approved Document Part M (ADM) and BS8300.

5.130
Although the UKCMRI will be car-free, Blue Badge parking for disabled members of staff and visitors will be provided. Two spaces for staff will be located off the street along Ossulston Street on the west adjacent to the staff entrance. Additionally, three spaces for visitors will be provided on Brill Place to the north near the main entrance. Car parking spaces will be within 50 m of the entrances.

5.131
The main entrance of the Proposed Development is on the east façade level with the adjoining paving. A separate staff entrance also on the east façade will be at a raised level and approached via wide steps with an adjacent ramp, which will be designed within the appropriate guidelines and regulations. An additional staff entrance is provided at the west off Ossulston Street, level with the adjoining paving.

5.132
A landscaped public space will be created on the east with both entrances to the Proposed Development clearly visible. This public space may be enjoyed by staff, visitors and the public. The visitor and staff entrances will be separated by a feature wall incorporating the change in levels between the two internal floor levels.

5.133
Changes in level will be clearly distinguished using textures and will be adequately lit without causing glare or creating pools of light or darkness.

5.134
Street furniture and planting will carefully positioned so as not to be obstructive or hazardous.

5.135
The main entrance glazed façade of the Proposed Development will incorporate sets of revolving doors with adjacent automatic single leaf swing doors.

5.136
A secondary secure staff entrance is provided on the west façade. Revolving doors with adjoining single leaf swing doors lead into an enclosed lift lobby. Alternatively the entrance on the east may be used by staff who prefer to use stairs or ramp to access the Proposed Development.

5.137
All the doors will be security controlled and will be the recommended clear opening width. Thresholds will be level with the floor surfaces externally and internally.

5.138
Weather protection such as a canopy or overhang will be provided over the entrances. The entrance glazed doors and screens will have clear manifestation at the prescribed heights, contrasting visually with the background on both sides.

5.139
The reception desk will be clearly visible from the main entrance and be well lit with plenty of circulation space around it. Reception desks and service counters will be set at heights suitable for seated or standing users with low and high sections. Speech enhancement systems such as induction loops will be installed at reception desks / counters and in the auditoria. Meeting rooms will also be provided with such fixed systems or portable systems as appropriate.

5.140
Routes to visitors' waiting areas, sanitary facilities, exhibition areas and lectures theatres will be clearly defined.

5.141
Circulation routes will meet the requirements of ADM and will allow wheelchairs to pass and manoeuvre. Door widths and suitable ironmongery will also meet the requirements of ADM where applicable.

5.142
Stairs and lifts for access to and from the upper level of the back of the lecture theatre will be provided. Steps and a platform lift will be located adjacent to the reception desk for access to the seminar suite with support facilities off the main foyer.

5.143
Lift access is provided to all floors. Banks of lifts with associated stairs are located at key circulation points in the building. All stairways and lifts will meet the requirements of ADM.

5.144
All toilet facilities for visitors and staff will include wheelchair accessible WCs and WCs for ambulant disabled people, designed to best practice recommendations.

Figure 5-8. Collaboration spaces

5.0 Sustainability Assessment

5.145
On all typical laboratory floors the travel distance from the southeast block to the staff wheelchair accessible WC is more than the recommended 40 m, but all doors across the circulation routes will be on hold-open devices to compensate for the increased travel distance. It should be noted that the recommended travel distance is based on custom and practice and not on any research, so when a route is unobstructed a greater travel distance is acceptable.

5.146
Surfaces and finishes will be carefully selected. Hard shiny finishes particularly for floors, will be avoided to reduce problems of glare and reflection of sound. However, where hard surfaces are functionally desirable, the potential problems of glare and sound will be addressed by lighting and absorbent finishes to walls and ceilings.

5.147
Surface textures will be used to warn of hazards such as changes in level. Colour, tonal and luminance contrast will be used to distinguish boundaries of floors, walls, doors, ceilings and approaches to changes in floor level.

5.148
Lighting systems will be used to accentuate interior colour, tone and texture. Light fittings will be positioned where they will not cause glare, reflection or shadows and will also identify potential hazards such as stairs or changes in floor level along a route. Audible alarms will be supplemented by visual alarms for people with impaired hearing.

5.149
A clear wayfinding strategy with appropriate signage for the whole site will be developed. Wayfinding systems will be simple with universal symbols and colours used to signal features such as circulation cores and toilet facilities. Signage will be positioned so as not to be obstructive. Signs will be clear, simple and short using type faces, colour and graphics with pictorial symbols as appropriate. Tactile signs will be provided where they can be easily reached, such as lift controls.

5.150
The Proposed Development supports a strategy to encourage pedestrian routes along Brill Place and to the south of the Proposed Development as an alternative to the Euston Road between the major stations of St Pancras International and Euston.

5.151
The Proposed Development addresses Midland Road with its principal entrances opening on to a generous public space mediating between the public roadway and the entrance lobby. This space fulfils a number of functions:

- It is an important part of the pedestrian network from Euston Road north to Somers Town and west from St Pancras International to Euston. This is catered for by providing wider more generous pavements guiding pedestrians through to Brill Place and Purchese Street Open Space. Circulation links in with the existing pedestrian crossings on Midland Road to St Pancras International.
- It is also the front door to an institution of international importance which requires a welcoming open aspect allowing gathering space for organised visitor parties while taking into account security considerations.

5.152
Pedestrian scale lighting will be incorporated to the east of the UKCMRI.

5.153
UKCMRI has taken into account Secure by Design; Crowded Places and Safer Places in all aspects of security design and planning. UKCMRI ‘s approach to security is threat based and proportionate.

5.154
UKCMRI is in regular contact with the police and relevant security services who have contributed to the development of the design

5.155
Additionally UKCMRI has recently been invited to participate in the Euston Road Community Security Zone Forum.

5.156
UKCMRI intends to use a layered approach to security and utilise a combination of a robust ‘layered’ access control system, high quality 24 hour monitored CCTV, alarms and 24 hour manned guarding.

5.157
A security management plan has been produced which will be further developed for the construction and operation of the Proposed Development. Elements of this plan will be submitted to LBC.

5.158
The Proposed Development will employ an off-site consolidation centre to manage delivery and storage requirements. This will allow for security screening (including x-ray) prior to departure and arrival at the Proposed Development.

5.0 Sustainability Assessment

5.159
Open Space, Natural Environment and Biodiversity
The Proposed Development will provide new publicly accessible open space, enhancing the quality of the public realm.

5.160
The proposed public space on Midland Road will provide a new civic space, open and welcoming but softened and contained by birch trees on its northern edge where it connects with Purchese Street Open Space. The paving will be a mixture of York stone and Caithness stone arranged in bands of varying texture and colour which reflect the building façade in their articulation and provide a lively dynamic space. Because of constraints below ground, the trees will be in raised planters planted with low shrubs and supporting generous public seating.

5.161
The Proposed Development is set back from the junction of Ossulston Street and Brill Place creating a sunny public space with a grass lawn and fragrant climbing plants on the west facing wall. A large plane tree will be planted on this corner to soften views of the building and to link with the existing mature street trees.

5.162
Additional street tree planting is proposed along both Ossulston Street and Brill Place to soften the elevations and integrate with the neighbourhood. The existing pattern of pavement build-outs with trees will be used to accommodate additional parking and reduce the apparent width of the roads.

5.163
There will be a new pedestrian route on the southern boundary of the site between Midland Road and Ossulston Street to provide additional permeability in the neighbourhood. It is proposed that this will be made available to the public subject to UKCMRI retaining control on grounds of meeting operational building requirements and security considerations.

5.164
With regard to biodiversity, the UKCMRI project team includes an ecology team which advised on the protection and enhancement of the biodiversity value of the site. Refer to ES Chapter 11: Ecology for further detail.

5.165
Ecological surveys were undertaken in 2008 and 2009. Generally, the existing site is considered to be of no ecological value and it was found that no negative change in the ecological value of the site will occur as a result of the Proposed Development.

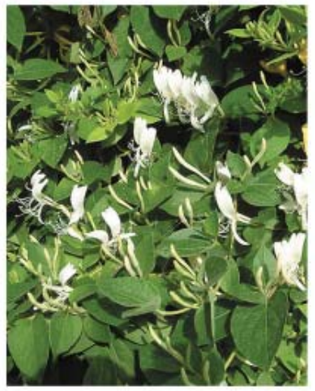
5.166
During construction, should bats be identified on site, a suitably qualified ecologist will be consulted in order to comply with the necessary legal protection for bats. The potential for black redstarts to inhabit the site is minimal during demolition and construction. However, if black redstarts are found within the site then appropriate mitigation measures will be implemented.

5.167
The ecology team has also provided recommendations for enhancing the ecological value of the site. These recommendations were taken into consideration when developing the landscape design for the site. As such, the Proposed Development will incorporate trees, shrubs, and bat and bird nesting boxes in the building façades.

5.168
It was originally proposed to specify green roofs on a limited area of the roof at levels five and six. Following LBC feedback, the current design has replaced green roofs with brown roofs, as these attract the local wildlife. The brown roofs will be made of recycled substrates which will be colonised over time by a succession of plant and animal species, adding to the biodiversity value of the area.

5.169
UKCMRI has also committed to minimise the long term impact of the development on the site and surrounding area's biodiversity, by following best practice principles, such as:

- Appointment of a suitably qualified ecologist prior to commencement of activities on site;
- Compliance with all relevant EU and national legislation relating to protection and enhancement of ecology during the design and construction phases;
- Production of a landscape and habitat management plan, appropriate to the site, covering at least five years after project completion;
- Nomination of a 'Biodiversity Champion' with the authority to influence site activities and ensure that detrimental impacts on site biodiversity are minimised;
- Training of site workforce on how to protect site ecology;
- Recording of actions taken to protect biodiversity during construction; and
- Site works programmed to minimise disturbance to wildlife, where flora and/or fauna habitats exist on site.


LONICERA JAPONICA HALLIANA


CLEMATIS BROOM


IRIS FOETIDISSIMA


LAMIASTRUM GALEOBDOLON

Figure 5-9. Proposed Species

5.0 Sustainability Assessment

5.170
Sustainable Waste Behaviour
The Proposed Development will provide easily accessible waste and recycling facilities during both the construction and operational phases.

5.171
During the construction phase, the Proposed Development will aim to reduce the amount of waste generated and exported from site. A Site Waste Management Plan (SWMP), including the monitoring of waste generated on site, the setting of targets to promote resource efficiency and the implementation procedures and commitments for minimising waste generated on site, has been produced and will be applied.

5.172
The purpose of the SWMP is to minimise any adverse impacts that construction has on the environment and to ensure that the design and construction process is managed in such a way as to minimise the production of waste, maximise recycling of materials and, where disposal is necessary, to ensure that the disposal is undertaken without harm to the environment and persons on or off the project, in accordance with all relevant statutory requirements, Regulation 6 of Site Waste Management Plans Regulations 2008 and LBC's Code of Construction Practice and Guide for Contractors Working in Camden.

5.173
The SWMP will be issued to all contractors working on the project as part of trade package contract documentation.

5.174
The construction programme will ensure that there is a reduction of materials wasted in construction and therefore reduce the proportion of waste that is sent to landfill. The use of recovered materials and materials with above-average levels of reused and recycled content will be promoted.

5.175
In order to minimise the quantity of waste produced on site the following will be considered:

- 3D modelling/architectural coordination for Mechanical Electrical Plumbing (MEP) services and plant design – this will reduce waste from reworking on site;
- Unitised and pre-cast façades – off site manufacture will reduce waste on site. Installation in pre-made sections will reduce health and safety issues, and waste from damage to loose materials;
- Laboratory modularisation;
- Rationalised cladding panel sizes – simplified design of panels will reduce the waste produced at the factory, whilst repetitive work on site will reduce workmanship errors and unwanted replacement;
- Mechanical and electrical systems, pipe work, ducting and the like designed in such a way as to reduce the onsite wastage to as low as reasonably practicable. This will be extended where possible, to the point that plant, plant rooms, pump sets, ducting and pipe work etc will be manufactured off site and installed in modularised systems;
- Provision of dedicated areas to facilitate the separation of waste for potential recycling, salvage, and re-use. Separate bins will be provided for particular materials such as ferrous and non-ferrous metals, timber, plasterboard, paints, and plastics etc. Waste bins provided at the work areas will be labelled and colour coded to encourage segregation of waste at source; and
- Off-site pre-fabricated MEP modules – The use of off-site, pre-fabricated MEP modules will result in significant reductions in the amount of on site waste generated. This waste reduction is achieved through assembly off site and the utilisation of factory production techniques which is coupled with increased production efficiency from a factory environment. There is also an associated reduction in vehicle movements of materials and waste to and from site, and a reduced level of on site labour in the assembly and installation of the MEP systems.

5.176
Records of waste removed from the site will be maintained by the contractor on a day-to-day basis to provide as a minimum the information listed below. The records will be issued by the contractor at the end of each week and will include:

- Date waste removed;
- Company removing the waste;
- Waste type and EWC code;
- Quantity of waste removed;
- Destination of waste;
- Consignment note number;
- Waste carrier registration;
- Confirmation of delivery; and
- Waste Management details (re-used on/off site, recycle on/off site, recovery, landfill, other).

5.177
The SWMP process will follow the Waste and Resources Action Programme (WRAP)'s guidance and utilise WRAP tools and processes wherever practicable.

5.178
The WRAP template provides a six stage approach to SWMPs and it enables the identification of good and best practice opportunities, further driving down waste and identifying potential cost savings. It helps to:

- Produce a SWMP that meets regulatory requirements;
- Set actions to prevent, reduce and recover waste;
- Identify waste reductions at the design stage;
- Forecast the waste arisings;
- Record waste carriers and waste management facilities;
- Prepare waste management actions;
- Record actual waste movements;
- Benchmark against Standard, Good and Best Practice;
- Use the results to demonstrate corporate responsibility; and
- Substantially reduced waste arisings and deliver associated cost and environmental gains.

5.179
WRAP SWMP guidance notes are presented in Figure 5-10.

5.180
In keeping with guidelines set out by the Government for the reclaiming of aggregates deconstructed where practicable all concrete and brick elements arising from demolition activities will pass through crushing machines and the residual material will be recycled for use on site in accordance with the Site Waste Management Plan Regulations 2008. Demolition and construction contractors will be constantly monitored to ensure that the proportion of materials being recycled is maximised wherever possible.

5.181
All liquids and soils of a potentially hazardous nature (for example, diesel fuels, oils, and solvents) will be stored on surfaced areas with bunding, to the satisfaction of the EA.

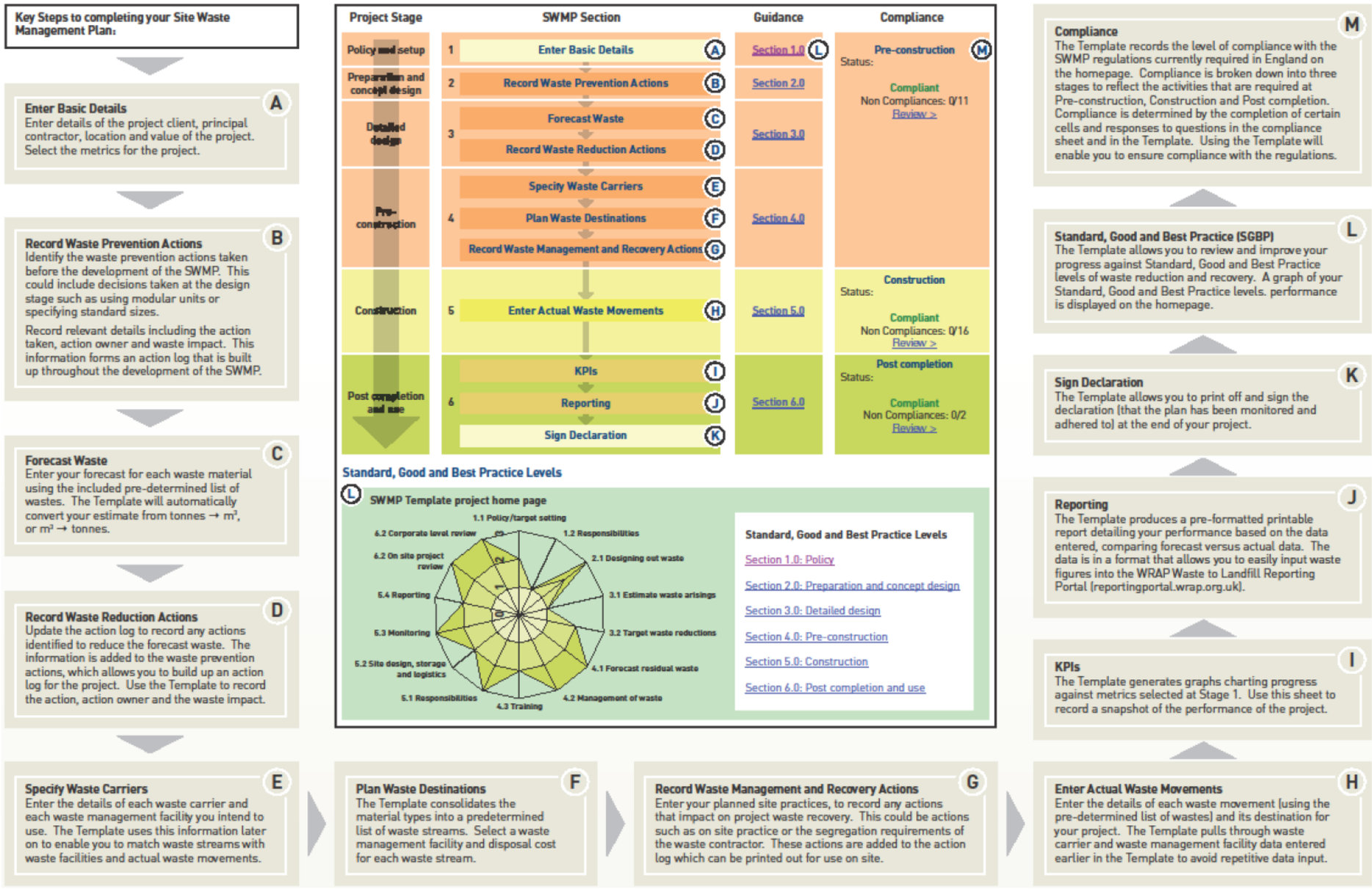


Figure 5-10. WRAP SWMP guidance notes

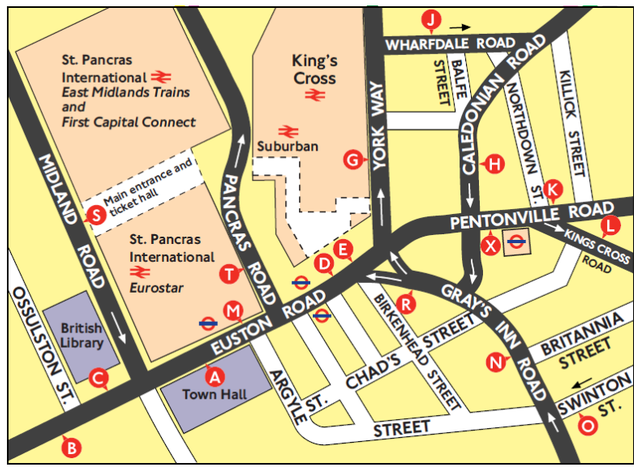
5.0 Sustainability Assessment

5.182
To maximise the recycling opportunities, once the development is operational, waste management facilities will be provided to all floors of the Proposed Development to allow occupants to separate recyclable materials from general waste through the provision of separate recycling bins. This will enable the separation of recyclable and non-recyclable waste streams as well as the separation of organic waste from kitchen and dining areas. Building users will be provided with information on the waste strategy for the Proposed Development, including recycling targets.

5.183
Waste will be managed as per the ES Chapter 18: Waste to be read in conjunction with the Service Management Plan.

5.184
Provision will be made within the Proposed Development for a dedicated space for compostable food waste to be stored prior to removal and composting at an alternative site (through a specialist contractor). The possibility of providing the compostable waste to the nearby bio-digestive boiler plant will also be investigated during the operational phase.

5.0 Sustainability Assessment



5.185
Sustainable Transport
The Proposed Development will support travel by walking, cycling and public transport.

5.186
A Transport Assessment and Travel Plan for the Proposed Development have been prepared and submitted as part of the planning application. Refer to ES Chapter 8: Traffic and Transportation for further detail.

5.187
The Transport Assessment:

- Establishes the baseline movement flows for road traffic;
- Reviews external accessibility issues covering public transport (rail, LUL and bus); vehicles (cars, taxis, motorcycles, bicycles, delivery and servicing vehicles); and pedestrian links;
- Considers options for the enhancement of pedestrian circulation and potential improvements to the public realm;
- Considers the design and layout in terms of building servicing access and delivery traffic, parking and pedestrian access;
- Identifies trip generations covering employee journeys to work and business visitors;
- Identifies changes on road traffic, pedestrian traffic and public transport passenger loadings due to the Proposed Development; and
- Considers mitigation measures where appropriate to reduce adverse effects of changes in trip generation and distribution.

5.188
The Travel Plan sets out a range of measures that will deliver sustainable transport. The plan has been developed and tailored to the specific needs of the users, such as:

- Walking;
- Cycling;
- Public transport;
- Visitors; and
- Deliveries.

5.189
Transport information and material will be provided to the building users and visitors to promote sustainable travel and ensure they are aware of the travel choices available to them.

5.190
The site is exceptionally well placed with respect to travel by train. Within a ten minute walk of the site are three of London's most important rail termini: St Pancras International, King's Cross, and Euston. Services operating out of these stations provide fast and frequent services to the North of England, the East and West Midlands, Scotland and North Wales. Local services provide connections to Hertfordshire, Bedfordshire, Cambridgeshire, Northamptonshire and parts of Buckinghamshire, Kent, Surrey and East and West Sussex.

5.191
The closest London Underground station to the development is King's Cross St Pancras Underground Station. The station is located at a strategic point on the London Underground network served by six lines: Victoria, Piccadilly, Northern, Hammersmith & City, Circle and Metropolitan Lines. Between them they provide routes in all directions across London.

5.192
The site is well served by the local bus network, with a number of bus stops within a comfortable walking distance. These services all operate at an attractive frequency, ten minutes or less between buses, and provide links to many areas across London, as well as Network Rail and London Underground stations, which allow for greater access from other areas of London and from the country as a whole.

5.193
To promote sustainable means of transport, the Proposed Development will not include car parking provision, apart from car parking spaces dedicated to blue badge disabled users.

5.194
The Proposed Development will make provision for cyclists. Covered, well lit and secure cycle parking and associated changing facilities will be provided. In compliance with LBC guidelines, 173 bike spaces will be provided for the staff, and 26 spaces for the visitors. Furthermore, there are various cycle routes close to the site and these form sections of the London Cycle Network (LCN).

5.195
The Proposed Development supports strategies to encourage pedestrian routes to the North along Brill Place and to the south of the building as alternatives to Euston Road between the major stations of St Pancras and Euston. The new pedestrian route on the southern boundary between Midland Road and Ossulston Street will provide additional permeability in the neighbourhood. It is proposed that this will be made available to the public subject to UKCMRI retaining control on grounds of meeting operational building requirements, security and other considerations.

5.0 Sustainability Assessment

5.196
Economic and Social Sustainability
An assessment of the socio-economic impacts of the Proposed Development has been undertaken (refer to Refer to ES Chapter 17: Socio-Economics and Economic Benefits report for further detail).

5.197
Promotion and expansion of development for medical research and innovation is strongly supported by the London Plan Policy 3A.22, which recognises London's importance as a hub of health related research and development and a centre for clinical, training and research excellence. The Proposed Development will enhance the central London biotechnology cluster.

5.198
The Proposed Development will reinforce the geographic focus of Camden as a centre for medical research. The concentration of medical research institutions will create the environment for pharmaceutical and biotechnology start-ups and spin-offs to thrive, supporting small and medium size enterprises.

5.199
As promoted by the London Plan Policy 3B.5, the Proposed Development will support innovation through facilitating greater collaboration between different scientific disciplines and the translation of laboratory research into practical, clinical application leading to new discoveries, new treatment and new cures.

5.200
In attracting leading researchers and providing a facility for PhD students, the Proposed Development will assist in supporting London's reputation as a centre of excellence in higher education, as promoted in the London Plan Policy 3A.25.

5.201
The Economic Benefits Report that accompanies the package of application documents demonstrates how UKCMRI will deliver considerable economic sustainable growth for Camden, London and the UK. These key benefits include:

- Increasing GDP by around £16 million per year through Spillover effects, including those related to patents, increased occurrence of start-ups and spin-off companies and improved firm productivity and growth through knowledge transfer and deep labour markets;
- Reducing the economic burden of disease through investing in life sciences that will save significant money by developing new treatments;
- Generating an estimated £8 million per year to the local economy through spending by workers;
- Creating new jobs across a range of roles from research scientists to engineering, administrative and other support staff;
- Creating opportunities through apprenticeships and other training and learning initiatives;
- Promoting healthy living locally through the provision of a community facility;
- Creating a variety of public outreach programmes aimed at engaging the local communities via workshops, conferences and youth events; and
- Contributing towards improved safety and vibrancy through the investment of significant resources into this site in need of development and activity and its security.

5.202
The Institute has a strong series of public engagement goals, an ambition to engage with the local community while also creating a building which is visually permeable – 'the sciences on show'.

5.203
The publicly accessible facilities will include:

- A community facility;
- Use of teaching laboratory to update teachers and students on the latest scientific knowledge and teaching; and
- Access to exhibition areas, including private views for local groups.

5.204
UKCMRI will also work with local schools and community youth groups to help foster enthusiasm about science and medicine, preparing them for the exciting jobs of tomorrow.

5.205
Schools outreach will include:

- The use of teaching laboratories to update teachers and students on latest scientific understanding and techniques;
- A UKCMRI staff volunteering policy for working in local schools;
- Private views of UKCMRI exhibitions; and
- "Open house" sessions for teachers, students and governors on UKCMRI's work.

5.206
In accordance with London Plan policies 3B.1 Developing London's Economy and 3B.11 Improving Employment Opportunities for Londoners, the Proposed Development will include an employment and training strategy to ensure that the economic benefits arising from the Proposed Development are maximised for local residents and businesses.

5.207
While many of the scientists working at UKCMRI will be drawn from a labour pool that is international in nature, there will also be tangible economic and social benefits for the surrounding area. UKCMRI will implement an employment and training strategy to ensure that the opportunities are maximised for local residents and businesses.

5.208
The Proposed Development will contribute to urban regeneration by boosting demand for local services.