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Our ref: PDU/2594/GK01
Date: 30 March 2010

Sarah Ballantyne-Way
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LONDON W1J 6ER

Dear Ms. Ballantyne-Way

Town & Country Planning Act 1990 (as amended); Greater London Authority Act 1999 & 2007; Town & Country Planning (Mayor of London) Order 2008
Brunswick Park, Barnet
PDU Reference: 2594

Further to the pre-planning application meeting held on 16 March 2010, I enclose a copy of the GLA's assessment which sets out our advice and matters which will should be fully addressed before the application is submitted to the local planning authority.

The advice given by officers does not constitute a formal response or decision by the Mayor with regard to future planning applications. Any views or opinions expressed are without prejudice to the Mayor's formal consideration of the application.

Yours sincerely,

pp **Giles Dolphin**
Assistant Director – Planning

cc Colin Lovell, TfL
Dean Williams and Helen Wood, LDA

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GREATER**LONDON**AUTHORITY

PDU/2594/01

30 March 2010

Brunswick Park, Osidge Lane

in the London Borough of Barnet

The proposal
Development of a co-located facility comprising a medical centre, library, children's centre and nursery, the Acorn centre, pharmacy and cafe.
The applicant
The applicants are **Elevate** and **Barnet Council**, and the architect is **Sprunt**.

Context

1 On 26 February 2010 the agent requested a pre-planning application meeting with the Greater London Authority on a proposal to develop the above site for the above uses. On 16 March 2010 a pre-planning application meeting was held at City Hall with the following attendees:

- Loren Brown – Principal Officer (GLA)
- Gemma Kendall – Case Officer (GLA)
- Glen Rollings – Design Officer (GLA)
- Jon Canty – Transport Officer (TfL)
- Jonathan Williams – Energy Consultant (BRE)

- Courtney Davies – (Barnet Council)
- Nick Meurice – (Elevate Partnerships)
- Catia Garcia – (Elevate Partnerships)
- Robert Sprunt – (Sprunt Architects)
- Mike Derbyshire – Planning Consultant (Savills)
- Sarah Ballantyne-Way – Planning Consultant (Savills)
- Adrian Neve – Transport Consultant (PBA)
- Rob Wise – Energy Consultant (Elementa)

2 The advice given by officers does not constitute a formal response or decision by the Mayor with regard to future planning applications. Any views or opinions expressed are without prejudice to the Mayor's formal consideration of the application. Please note that the quality of the advice you receive will be dependent upon the documentation that you let us have in advance of the meeting.

3 The advice will be sent within ten working days of the pre-planning application meeting.

Site description

4 The proposed development comprises two separate sites, with a total area of 1.06 hectares. The first component site is the western site, that currently contains the Osidge Library, along with a derelict building, most recently occupied by Brunswick Park Health Centre. A large car park wraps around the derelict health centre. The western site is bound by Osidge Lane to the north, a residential dwelling and Brunswick Park Primary School to the west, Apthorp Lodge care home and a residential dwelling to the south and Brunswick Park Road to the East.

5 The eastern part of the site comprises part of Brunswick Park, which is designated Metropolitan Open Land (MOL), a community hall and a turning circle/access road to the school. The eastern site is bound by Osidge Lane to the north, a scout hall to the east, a residential dwelling and the primary school to the west. Brunswick Park wraps around the southern and eastern part of the site.

6 The two parts of the site are separated by Brunswick Park Primary School which is not part of the proposed development (but is part of the wider masterplan for the area). Both sites are located in East Barnet in North London, in an area that is characteristically suburban and residential.

7 There are substantial level changes across both parts of the site with the southern section of the western site significant elevate above the northern section, and the eastern site sloping up towards the primary school to the west.

Site visit

8 On 11 March 2010 a site visit was carried out by Gemma Kendall.

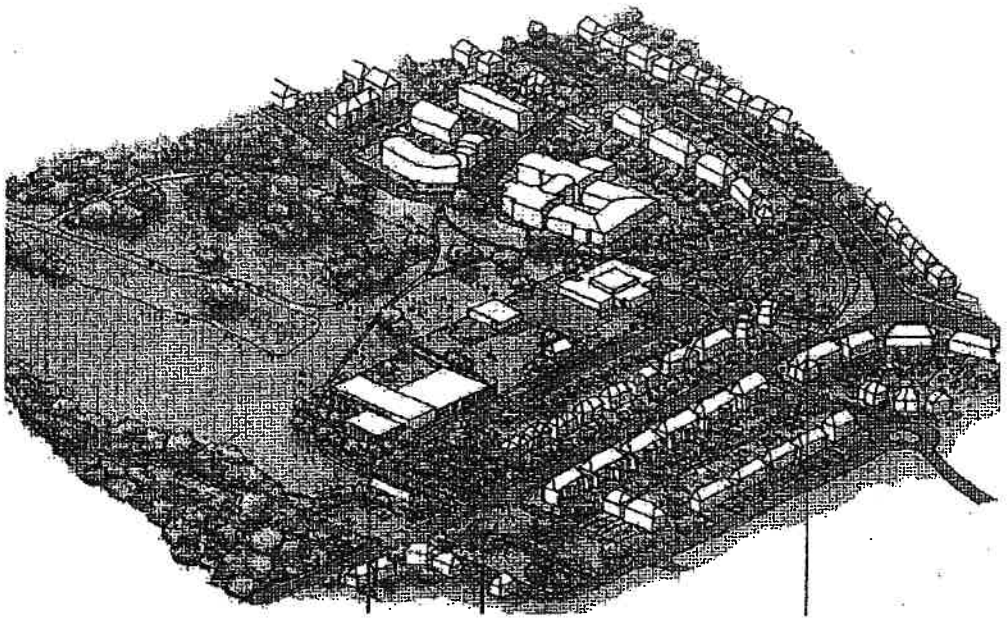
Details of the proposal

9 The proposed scheme includes the demolition of the community hall on the eastern site and the erection of a part single, part two-storey facility comprising a children's centre, nursery, centre for children with learning difficulties (Acorn centre), a health centre for five doctors, a library, a pharmacy and a cafe on the north boundary of Brunswick Park. This facility is referred to as a co-located facility as it will replace a number of individual services which are currently located elsewhere in the borough. The proposal will result in a loss of 4,376 sq.m of MOL. In order to address this loss of MOL, it is proposed that the existing Osidge library and Brunswick health centre on the western site are demolished and the land converted to 4704 sq.m. of open space which would be designated MOL and will provide a new entrance into Brunswick Park.

10 The proposal also includes:

- 39 car parking spaces, including three blue badge parking space.
- Mini-bus pick-up/set down space.
- Associated landscaping of both sites.
- Enclosed landscaped outdoor area for the use of the nursery school and Acorn centre.

Illustration of the proposed development



(Source: Draft Design and Access Statement, Sprunt)

Strategic planning issues and relevant policies and guidance

11 The relevant issues and corresponding policies are as follows:

• Green Belt/MOL	*London Plan; PPG2*
• Access	*London Plan; PPS1; Accessible London: achieving an inclusive environment SPG; Planning and Access for Disabled People: a good practice guide (ODPM)*
• Urban design	*London Plan; PPS1*
• Sustainable development	*London Plan; PPS1, PPS3; PPG13; PPS22; the Mayor's Energy Strategy; Sustainable Design and Construction SPG*
• Transport	*London Plan; the Mayor's Transport Strategy; draft replacement Transport Strategy; PPG13;*
• Parking	*London Plan; the Mayor's Transport Strategy; PPG13*

Principle of development

'Very special circumstances'

12 Planning policy guidance 2 *"Green Belts"* sets out that construction of new buildings in the Green Belt is inappropriate except for the following purposes: agriculture and forestry; essential facilities for outdoor sport and recreation, for cemeteries and for other uses of land that preserve the openness of the Green Belt; limited extension, alteration or replacement of existing dwellings; and limited infilling or redevelopment of major existing development sites identified in the adopted development plan.

13 London Plan policy 3D.10 *"Metropolitan Open Land"* notes that MOL should be afforded the same level of protection as the green belt of which *"there is a general presumption against inappropriate development in the green belt, and such development should not be approved except in very special circumstances."* It also states that the protection of London's MOL should be maintained and that proposals for alterations to MOL boundaries should be considered through the DPD process in consultation with the Mayor and adjoining authorities.

14 As the development is not amongst the list of acceptable uses within 'green belt' and as the site is not identified as a major development site within Barnet Council's UDP, the proposal constitutes inappropriate development. The applicant has noted that Barnet's emerging policy document, *'The Core Strategy- direction of travel document'* identifies the acute need for upgraded or new healthcare facilities to be provided at Brunswick Park and as the Core Strategy progresses further the site may be designated for this use. However, the current Core Strategy document is not site specific and there is no indication that such a facility would be located on MOL.

15 The applicants are seeking to demonstrate 'very special circumstances' by showing that the harm of developing on MOL, is outweighed by the following considerations:

- **Landswap** - The applicants propose to reprovide 4704 sq.m. of MOL on western site to address the loss of 4376 sq.m. of MOL on the eastern site, resulting a net increase of 328 sq.m of MOL. The applicant states that the reprovided MOL will provide a new and improved access to the Brunswick Park with a higher quality landscaping. Whilst the net increase in MOL would be welcomed, there is some concern over the mechanism of the land swap. The applicant, under consultation with the Council's planning department, should clarify how the proposed MOL will be designated within Barnet Council's DPD framework and how the existing MOL will be de-designated. Furthermore, the applicants should indicate how works on the proposed MOL land will be secured and how the development will be phased to cause the least disruption to users of the park and the library.

  Another concern regarding the landswap, is that there is currently no access to Brunswick Park from the western site and the boundary of Brunswick School would need to be adjusted to allow access to the park from the site. The proposed access is a narrow path between the proposed open space and the expanse of Brunswick Park. As discussed in the meeting, the redevelopment of Brunswick School during phase two of the masterplan as set out by the applicants, would provide a much wider access into the park. However, there is currently no funding for phase two of the masterplan and whilst the council is committed to redevelopment of the whole area, there is no guarantee when or if phase two will take place. When the planning application is made, the applicants should demonstrate how they will secure access to the park from the western site and should indicate how they attend to treat the proposed access route to encourage use of the wider park.

- **Community need** – As stated above, the acute need for a new health centre at Brunswick Park is recognised in Barnet's emerging policy documents. The aspiration to provide this service in a co-located facility along with a nursery, library, centre for children with learning difficulties, cafe and pharmacy is understood, however, as is outlined below, should be better summarised. The applicant may wish to outline in the planning application the community benefits and opportunities for joint-up working between these related services specifically at Brunswick Park.

Site selection and development options

16 The site selected for the proposed co-located facility building is designated MOL in the Barnet UDP. In the pre-application meeting the applicants were asked to explain the rationale for choosing an MOL site as the preferred development location. The applicant highlighted that there were significant advantages to developing this site over the existing Brunswick Health centre and library on the western site. The development the MOL site would allow the library to remain open during the build period, although the health centre has already closed down due to fire damage and its services temporarily absorbed into other local surgeries; allow for a new entrance to Brunswick Park from the street; and will enhance access and visibility of the primary school which is currently 'tucked away' behind housing.

17 However, whilst these reasons highlight the advantages of opening up the site of the existing library and health centre, they do not adequately justify why the proposed building is located on this specific site in MOL and whether other sites were considered. The applicants did not, for example, demonstrate any strong links between Brunswick primary school and the co-located facility which necessitates the institutions to be located directly next to one another.

18 As suggested by GLA officers, a full site selection process should be undertaken including a clear demonstration as to why this site is the most suitable for the development. Even within the immediate area, there appears to be other sites such as the existing access circle to the school, the community hall, and the scout hall and car park directly to the east which might be a more appropriate site for the new facility (which could incorporate facilities for the Scouts) as it is not designated MOL and would allow the facility to front onto Osidge Lane. The applicants stated in the meeting that they underwent a significant site selection process but did not submit this information at the pre-application stage. When the planning application is made, full details of the search methodology should be provided to demonstrate that there are no other suitable alternative sites and detailing why the chosen site is the most suitable. In particular the applicants should provide information as to whether any options relating to the use of the site fronting Osidge Lane have been investigated. Although it is important that the selection process should include all sites within the proposed facilities catchment area.

19 Additionally, while the advantages of a co-located facility are obvious from a practical perspective, the application documentation should also fully assess the attributes of the existing separately located facilities and why these are no longer appropriate. The documentation should also include an assessment as to whether any of the existing sites could accommodate the larger co-located facilities and should very clearly identify why the facilities have to be joined up with the other proposed uses. An assessment of each of the existing sites should be provided.

Loss of community facilities

20 The current proposal will result in the loss of a community hall on the eastern site. The applicant clarified in the meeting that the community hall is currently leased by a local church group and is not disused as stated in the applicants' design and access statement. London Plan Policy 3A.18 *"Protection and enhancement of social infrastructure and community facilities"* resists the net loss of community facilities. Whilst it has been suggested that rooms within the co-located facility would be available for community use, the applicant should demonstrate that the function carried out by the existing hall can be catered for in a surrounding area and the loss of the hall will not result in a deficiency of community hall space. Allowing the use of the facility for community uses could be secured by any future S.106 agreement.

Access

21 London Plan Policy 4B.5 *'creating an inclusive environment'* expects all future development to meet the highest standard of accessibility and inclusion. This, together with the Supplementary Planning Guidance 'Accessible London: achieving an inclusive environment' underpins the principles of inclusive design and the aim to achieve an accessible and inclusive environment consistently across London. Inclusive design principles, if embedded into the development and design process from the outset, help to ensure that all of us, including older people, disabled and deaf people, children and young people, can use the places and spaces proposed comfortably, safely and with dignity. The aim of Policy 4B.5 is to ensure that proposals achieve the highest standards of accessibility and inclusion not just the minimum.

22 As discussed in the meeting, the general layout of the building appears to be accessible and well thought out. The applicant clarified that there will by level access out to the nursery and Acorn centre play area and part of the play area will be accessible to wheelchair users. However, the access arrangements to the main entrance of the building are of concern. The proposed design requires visitors unable to use stairs, and arriving from the east of the development or by car, to walk a lengthy distance around the stairs to the buildings main entrance. The applicants should incorporate level and direct access to the main entrance, especially when taking into account the nature of the uses within the building. The use of a specialised access consultant is recommended.

Urban design

23 Good design is central to all objectives of the London Plan and is specifically promoted by the policies contained within Chapter 4B which address both general design principles and specific design issues. London Plan Policy 4B.1 sets out a series of overarching design principles for development in London. Other design polices in this chapter and elsewhere in the London Plan include specific design requirements relating to maximising the potential of sites, the quality of new housing provision, tall and large-scale buildings, built heritage, views, and the Blue Ribbon Network. The draft replacement London Plan reinforces these principles, with new development required to have regard to its context, and reinforce or enhance the character, legibility and permeability of the neighbourhood (policy 7.1).

Land uses and layout

24 The proposed development is located on MOL. As mentioned previously, adequate justification of the development in MOL should be provided. The design and access statement will also need to demonstrate that the chosen location and layout is the most suitable. This should include a consideration of alternative layouts and the use of other sites as locations for the proposed facilities.

25 It is clear that the development has been proposed as part of an overall masterplan. Elements of this plan – such as providing appropriate access between the new area of MOL at the northwestern corner of the site and the main area of MOL land, locating co-dependent facilities close to each other, and access and circulation issues – are dependent on the future phases of the proposal being delivered. Although these are not scheduled or funded by the Council, the development will deliver benefits that will improve the overall design quality of the present proposal, subject to the present parameters being retained and as such the GLA strongly encourages the Council to deliver these benefits.

26 GLA officers are not convinced that the entrance to Brunswick Park, in the location of the community hall to be demolished, will optimise the MOL setting. The current entrance from Osidge Lane provides a continuation of the north-south linear park, and the width and open nature

of the entrance provides excellent visibility into the park and the distant ridge. These factors have a significant impact on the character of the immediate area and should be incorporated within the new development if possible. The car park at the landscape and width of the pathway between Osidge Lane and the MOL are proposed factors that will affect the character.

27 The creation of the new area of MOL to replace that taken by the development is supported, but its effective linkage with the main area of MOL is important. A recognisable quality of MOL is its openness and contribution to a wider environmental network. While the new proposed piece of park will have town square or gateway qualities, it is important that the link between the two areas is attractive to use and provides a natural draw-through for users by providing clear visual links between the areas. The delivery of phase two of the masterplan will be crucial in the delivery of a wider access route.

Building design

28 The principles of the building's design are supported. The design process presented at the meeting demonstrates that the building has been designed to fit within, and not overpower, the landscape within the MOL. At the same time, it provides a reasonable response to the rear aspect of the adjoining homes. The proposed materials will act with the massing of the building to further ensure that it is a fair addition to the landscape. The design and access statement will need to confirm that this is the case, by including an assessment of the character of the MOL and the effects of the development upon this character, as well as the impacts on views.

29 Issues that were discussed at the meeting that are subject to further clarification include the access from the building into the MOL, and the layout of the sunken play enclosure. Officers expect to see a clear access strategy within the design and access statement that demonstrates equality of access regardless of ability. The segregated and lengthy wheelchair route between the car park and main entrance is a matter of concern, that has been raised previously in this report.

Secured by design

30 The design and access statement is required to demonstrate that the route between the existing homes and the proposed building is secure and effective, and that existing occupants will not be disadvantaged by the development. The statement should also provide detail of boundary treatment, especially with regard to the separation of the building and the MOL, and its effect on the appearance and character of both.

Energy

31 As discussed in the meeting, the energy strategy was generally acceptable. However, the applicant should model baseline carbon dioxide emissions rather than use benchmark standards. The applicant should also demonstrate carbon dioxide savings above building regulations.

32 The possibility of linking the energy requirements for the proposed co-located facility and the planned redevelopment of Brunswick primary school and sports centre was discussed. It is felt that as the planned redevelopment of the school and sports centre have not yet received funding, the uncertainty over when it would take place, means that should not be considered in conjunction with this application.

33 It is agreed that, due to the size and type of the development, it is not suitable for combined heat and power. The selection of a ground heat pump to provide renewable energy is appropriate but more information regarding the type of pump, such as the direction of the coils, should be provided.

34 The bar chart on page 15 shows no increase in carbon emissions due to electricity after the ground source heat pump has been incorporated. This should be amended as the ground source heat pump will result in an increase in site imported electricity along with a drop in fossil fuel use.

35 A comprehensive guide to the GLA's approach to Energy can be found in the attachment to this report. It should be noted that applicant appears to have used the slightly out-dated Energy Toolkit.

Transport

36 The application site has an existing access from Osidge Lane in the form of a turn-around loop which also provides access to the existing school. The site is not located within proximity to any roads on the Transport for London Road Network and the development proposals are not of sufficient magnitude to have an effect on the A111, which is the closest road on the Strategic Road Network ,approximately 900 metres northeast of the site.

37 The site is beyond walking distance of any underground or rail stations, however, bus stops are located within 200 metres of the site served by the 125, 184 and 628 routes. The public transport accessibility level is one on a scale of one to six (with six representing the highest level of accessibility).

Car Parking

38 The development proposals include 39 parking spaces, this number being determined from assessing the existing parking demands of each of the elements of the proposed uses with recognition of the linked trips between uses and applying a slight reduction in tandem with travel plan measures. The proposed parking levels are considered to be broadly acceptable given that there are limited available parking standards for the proposed uses.

39 Three disabled parking spaces are provided adjacent to the building entrance together with a mini-bus stop for disabled children, these are both welcome. It is of concern, however, that the mini bus and disabled drivers will be required to turn around at the end of the access road by the school which is not desirable. It is suggested that a separate turn around facility be incorporated to eliminate the need for this.

40 Electric charging facilities should be provided for eight of the parking bays as requested in the consultation draft London Plan which seeks that 1 in 5 spaces provide active provision for an electric charging point.

Servicing

41 It was stated at the meeting that the mini bus stop would also be used as a servicing bay. The servicing arrangements will need to be considered in the design with appropriate vehicle swept paths undertaken and a prediction made of the likely servicing movements. A servicing management strategy will also need to be provided within the Transport Assessment document.

Cycle parking

42 The proposals include 54 visitor plus 6 staff cycle parking spaces with 5 showers for staff (to be made available for visitors). The relevant cycle parking standards in the consultation draft London Plan are 1 per 10 staff plus 1 per 10 visitors for Libraries and 1 per 5 staff and 1 per 10 visitors for Health centres. The proposed cycle parking provision is acceptable subject to confirmation of the predicted staff and visitor numbers. The cycle parking should be covered and secure.

Pedestrian Links

43 The proposals should include a full assessment of the pedestrian links to the local bus stops and identify the need for any improvements to be made such as the provision of additional crossings and provision of dropped kerbs and tactile paving on existing facilities.

Construction

44 Assurance that a Construction and Environmental Management Plan will be developed is welcomed and this document should be secured through an appropriate planning condition.

Transport Assessment

45 The draft Transport Assessment provides an assessment of the predicted changes on vehicular travel, however, the final document for the planning submission will need to provide a full assessment of the impact of the development on all modes of transport and should be produced in line with TfL's Transport Assessment Best Practice Guidance (May 2006): http://www.tfl.gov.uk/assets/downloads/businessandpartners/transport-assessment-guidance-2006.pdf

Travel Plan

46 The Travel Plan framework in the draft TA is welcomed, however, a stand-alone document will be required with the planning application, to demonstrate how travel demand will be managed and should include initiatives to minimise the effect on the transport system during the peak periods such as car sharing.

47 The use of ATTrBuTE travel plan building and evaluating tool is recommended. The Travel Plan should also consider the methodology in the document 'Guidance for workplace travel planning in London' (March 2008):http: //www.tfl.gov.uk/assets/downloads/corporate/Guidance-workplace-travel-planning-2008.pdf

Conclusion

48 Overall, TfL has no in principle objections to the development proposals subject to the above details being addressed.

Conclusion

49 Given, the obvious practical advantages of the co-located facilities in the Brunswick Park area, GLA officers encourage the preparation of a more robust justification for development within in MOL. This justification should include a full site selection process that assesses all of the existing facilities and other sites in the area. More information about the need for these facilities to be located together and why they need to be located adjacent to the school should also be provided.

50 Assuming this information can be adequately supplied, concerns regarding the openness of MOL; the access arrangements to the main entrance; the mechanisms for designating new MOL and details of the land swap arrangement; including the need for some of the school land to be used, must be addressed.

51 The energy strategy and the transport matter raised in this report, should also be addressed.

for further information, contact Planning Decisions Unit:
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GLA Energy Team Guidance on Planning Energy Assessments

Version 1, October 2009

Purpose of Energy Assessments

1 Introduction

1.1 This guidance note provides further detail on addressing the London Plan's energy hierarchy through the provision of an energy assessment to accompany strategic planning applications[1]. The purpose of an energy assessment is to demonstrate that climate change mitigation measures are integral to the scheme's design and evolution, and that they are appropriate to the context of the development.

1.2 For non-referable applications London boroughs are encouraged to apply the structure of this guidance when following development plan policies (which includes Borough LDF and London Plan policies) and adapt it for relevant scales of development.

1.3 The energy assessment should fully address requirements in Policies 4A.1 to 4A.7 in the London Plan taking account of relevant design and climate change adaptation policies in the Plan, and clearly outline the applicant's commitments in terms of CO_2 savings and measures proposed. A guide to details required within an assessment follow below.

2. Guidance on integration with supporting documents for planning applications

2.1 An energy assessment will always be required, however, where other documents are being submitted as part of a planning application, it may be appropriate to cross-reference these documents, provided cross-referencing is clear and the documents contain sufficient information to allow an assessment of the application. This may include the following:

- Design and Access Statement
- Sustainability Statement
- Code for Sustainable Homes pre-assessment report
- Environmental Impact Assessment

3 Outline and full planning applications

3.1 All outline planning applications will be expected to set out a clear energy strategy with commitments, to guide the design and development of a planning application at the detailed stages. Depending on the matters to be considered, applicants should still undertake initial feasibility work on each part of the energy hierarchy set out in this guidance. Boroughs should secure the strategy through appropriate clauses in the section 106 agreement or through an appropriate planning condition, and require reserved matters applications to demonstrate consistency with the outline strategy. This information is necessary

[1] Planning applications referred to the Mayor of London under the Mayor of London Order 2008

at outline stage in order to establish a deliverable framework for subsequent stages. It is also important to note that the Mayor does not see reserved matters applications or approval of details/discharge of conditions, therefore he needs to be satisfied at the outline stage that the climate change mitigation policies in the London Plan can be delivered.

3.2 An energy strategy should include the following:

- A target for overall CO_2 reductions
- A target for CO_2 emissions savings through energy demand reduction measures
- Commitment to communal heating infrastructure if appropriate for the development.
- Investigations of the feasibility and, where viable, commit to the installation of CHP in the proposed development.
- Large-scale developments should provide a feasibility assessment to ensure that CHP is sized to minimise CO_2 emissions.
- Initial feasibility test for renewable energy + commitment to reduce CO_2 emissions further through the use of onsite renewable energy generation, where feasible

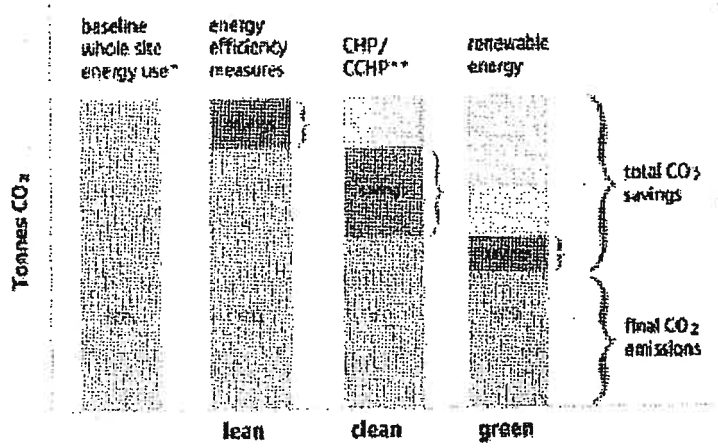
3.3 Full planning applications should provide the information set out below. Planning conditions and/or section 106 agreements should be used to secure the implementation of proposed measures, rather than secure feasibility work that should normally underpin a planning application. The technical and economic feasibility of such measures can be influenced by the stage at which they are considered in the design process. With the planning guidance now available, and the established London Plan policies, energy should be integral to any new planning application.

Structure and Content of Energy Assessments

4 Executive summary

4.1 This should be a non-technical summary setting out and committing to the key measures and CO_2 reductions identified as part of the application for each stage of the energy hierarchy. The concept of applying the energy hierarchy is illustrated in Figure 1 below.

Figure 1: The Energy Hierarchy



note *calculated using current Building Regulations (at time of publication 2006) plus the CO_2 emissions associated with other energy uses not covered by Building Regulations.
** including district heating and cooling.

4.2 Completion of the following table should be undertaken to demonstrate compliance with the energy hierarchy.

	Tonnes CO_2 per annum		Carbon dioxide (%)	
	Regulated	Total Energy	Regulated	Total Energy
Baseline emissions				
Savings from energy demand reduction				
Savings from CHP				
Savings from renewable energy				

Please note: When presenting the summary of the carbon savings being achieved, the Mayor's proposed carbon reduction targets for new developments, outlined in the draft replacement London Plan (published October 2009), should also be referenced as a material consideration.

5 Establishing Baseline CO_2 Emissions

5.1 The energy assessment should clearly identify the total carbon footprint of the development prior to the inclusion of any measures to reduce CO_2 beyond the minimum requirements of Building Regulations 2006. As the London Plan takes a 'whole energy' approach, baselines emissions should also take account of emissions associated with uses not covered by Building Regulations (ie unregulated energy uses).

5.2 The applicant should present baseline emissions broken down by heating, cooling and electricity demand. The purpose of this information is to help identify the technical feasibility of demand reduction measures, CHP including district heating, and renewable energy technologies.

5.3 Calculating baseline CO_2 emissions

Baseline emissions should be calculated on a 'whole energy' basis which includes the energy consumed in the operation of the space heating/cooling and hot-water systems, ventilation, all internal lighting, cooking and all electrical appliances and other small power.

Baseline emissions for **dwellings** should establish:

- A Target Emissions Rate (TER) calculated through the standard Building Regulations 2006 methodology SAP 2005[2]
- Additional emissions associated with non Building Regulation elements (i.e. cooking and appliances) established by using BREDEM (BRE Domestic Energy Model).

In terms of the extent of modelling work required, the applicant should provide a representative sample of domestic properties.

[2] SAP is the Government's Standard Assessment Procedure for Energy Rating of Dwellings. SAP 2005 is adopted by government as part of the UK national methodology for calculation of the energy performance of buildings. It is used to demonstrate compliance with building regulations for dwellings - Part L (England and Wales),

Baseline emissions for **non-domestic** development should establish:

- A Target Emissions Rate (TER) calculated through the standard Building Regulations methodology established through SBEM[3] or equivalent software
- Additional emissions associated with non Building Regulation elements (ie 'whole energy') established by using individual end use figures (for example catering and computing) from CIBSE guide baselines (eg CIBSE Guide F), ECON 19[4], or evidence established through previous development work.

A short summary of the modelling work output (ie a print out such as a BRUKL report) should be provided in an appendix of the energy assessment.

6 Demand Reduction (Be Lean)

6.1 It is technically possible to exceed Building Regulations requirements (Part L 2006) through demand reduction measures alone. Energy assessments should therefore set out the demand reduction measures specific to the scheme and demonstrate the extent to which they exceed Building Regulations. Measures typically include both architectural and building fabric measures (passive design) and energy efficient services (active design). Introducing demand reduction features is encouraged at the earliest design stage of a development.

6.2 Demonstrating CO_2 savings from demand reduction measures

- Passive design measures, including orientation and site layout, natural ventilation and lighting, thermal mass and solar shading, should already be set out in the Design and Access Statement and cross-referenced where appropriate. Active design measures, including high efficacy lighting and efficient mechanical ventilation, should be set out in the energy assessment.
- The applicant should provide details in the energy assessment of the demand reduction measures specific to the scheme, for example enhanced U-value numbers (W/m^2K), air tightness improvement, efficient services and lighting.
- The applicant should clearly identify the extent to which Building Regulations are exceeded through the use of these demand reduction measures alone, i.e. the percentage improvement of the BER/DER over the TER.
- The appendix of the energy assessment should include a summary output sheets from the modelling work (i.e. a print out such as a BRUKL report). For applications including residential units, a clear explanation of the different dwelling types modelled should be provided.
- The energy assessment should also set out proposals for how non-regulated energy and carbon dioxide emissions will be reduced through the use of energy efficient appliances and equipment, controls, good management practice, etc.

[3] Simplified Building Energy Model – other building regulation compliant software such as IES or TAS is also acceptable

[4] Energy Consumption Guide 19

- The percentage reduction in non-Building Regulations covered energy uses, along with measures undertaken, should also be provided

7. Decentralised Heating, Cooling and Power (Be Clean)

All planning applications should demonstrate how their heating, cooling and power systems have been selected to minimise CO_2 emissions in accordance with the order of preference in Policy 4A.6. Energy assessments will need to explicitly work through the order of preference and where an approach is not appropriate for the development, the assessment should provide reasoned justification.

7.1 Connection to existing low carbon heat distribution networks including combined heat and power

- The applicant should investigate the potential for connecting the scheme to an existing district energy system. Examples of existing CHP-led district energy schemes in London include Citigen, the Pimlico District Heating Undertaking (PDHU), Barkantine Heat and Power, Whitehall District Heating Scheme and the University College London and Bloomsbury CHP schemes. A back-up on-site strategy is also required in the event that connection to a district energy scheme proves unviable.
- If no existing scheme is present, the applicant should investigate whether such a network is planned in the area. Examples at present include Elephant and Castle MUSCO project, London Thames Gateway Heat Network and the Olympics Park and Stratford City CHP schemes. Developments should demonstrate that they are designed to connect to future district energy networks where possible (established or planned schemes may have detailed technical guidance which applicants should follow).
- Information related to the carbon factor associated with the heat utilised from networks should be obtained from the network operator and be provided.

7.2 Site wide heating networks

- Where multiple buildings are proposed, and where building density is sufficient, a communal heating system should be adopted with all buildings/uses within a scheme connected into a single site-wide communal heating network.
- The communal heating network should be supplied from a central energy centre where all energy generating equipment is located, such as boilers, CHP etc. Accordingly, the energy assessment should demonstrate that enough space has been allocated for a sufficiently large energy centre.
- Schemes that will be implemented in a number of phases, and where a number of energy centres are proposed, should seek to minimise the number of energy centres and explain how the energy assessment will be implemented across the development's phasing programme.
- A simple schematic of the communal heating network showing all buildings/ uses connected into it, as well as the location of the single energy centre, should be provided as part of the energy assessment. Where the development is phased, a number of schematics should be provided showing how the network evolves over including indicative timescales if available.

7.3 Combined Heat and Power (CHP)

- Applicants should evaluate the feasibility of CHP, including the provision of cooling using the CHP waste heat.
- Where CHP is considered feasible, a full feasibility analysis will be required including the size of the engine proposed (kWe/kWth) and suitable demand profiles for heating, cooling and electrical loads.
- In line with the London Plan energy hierarchy, the size of the CHP should be optimised based on the thermal load profile before renewable energy systems are considered for the site.
- CO_2 savings from the CHP should be expressed as a percentage reduction on emissions after demand reduction measures have been applied to the baseline emissions.
- Details of the commercial operation of the CHP scheme, such as information on the how any sales of heat/power will be managed should also be provided (this is particularly important where power is being exported to the local distribution network). Details of communication with Energy Service Companies (ESCOs) should also be supplied where appropriate.
- If CCHP (trigeneration) is considered appropriate to the development, the size of the absorption chiller to be used is required.

7.4 CHP beyond the site boundary

In line with policy 4A.6, where CHP is proposed, the applicant should investigate opportunities for extending the scheme outside the site boundaries. If CHP could be made feasible by connecting to energy consumers beyond the site boundary then applicants are encouraged to consider this option. Applicants could look in particular for opportunities to link to existing developments to help reduce their carbon dioxide emissions.

7.5 Cooling

Proposals for reducing CO_2 emissions in energy assessments should be robust in addressing the potential risk of overheating within a building and in setting out measures that aim to minimise the need for active cooling systems. Accordingly, a low carbon cooling proposals should be developed that sets out:

- measures that are being considered to reduce the demand for cooling in the first instance, i.e. minimisation of internal gains, minimisation of unwanted summer solar gains through the use of external shading devices, appropriate use of thermal mass, night cooling, etc.
- the extent to which the cooling demand has been minimised
- where the use of natural and/or mechanical ventilation is not enough to guarantee the occupants comfort the cooling proposals should include:
    - details of the cooling infrastructure being proposed
    - details of the cooling plant being proposed, including efficiencies, ability to take advantage of free cooling and/or renewable cooling sources

Where appropriate the cooling proposals should investigate the opportunities to improve cooling efficiencies through the use of locally available sources such ground cooling, river/dock water cooling, etc

8. Renewable energy (Be Green)

Energy assessments should set out consideration of each renewable energy technology in Policy 4A.7 of the London Plan. All technologies listed in the London Plan 4A.7 are considered potentially technically feasible in London.

8.1 Information required on renewable energy generation

- An assessment of what is achievable and compatible with the measures already implemented in steps one and two of the energy hierarchy should be provided.
- Applicants should provide calculations to demonstrate that their chosen system or systems will reduce CO_2 emissions from residual emissions once CO_2 savings from demand reduction measures and energy efficient supply including CHP have been discounted from baseline emissions.
- Where a number of renewable energy technologies are proposed, it will be important to demonstrate how they will work in tandem and how they will be integrated into a communal heating network (for heat generating technologies).

8.2 Details required in relation to biomass application

Small biomass boilers (below 500kWth) in Air Quality Management Areas are considered unsuitable unless they can demonstrate that they have no adverse effects on local air quality when compared with conventional gas fired boilers, as stated within the Mayor's draft Air Quality Strategy[5].

Where the use of biomass is proposed, the biomass boiler must be certified as an exempt appliance in accordance with the Clear Act 1993. A list of exempt appliances can be found at:
http://www.uksmokecontrolareas.co.uk/appliances.php

Efforts should be made to ensure the biomass boiler be one of the lowest emitting models available on the Government's Exempt Appliance list at the time of installation. The following information should also be provided:

- The make, model and thermal capacity of the biomass boiler and details of the additional abatement technology that has been investigated for fitment to reduce air pollution emissions. What reductions in emissions will this produce?
- The type, height and location of the chimney
- Information on the fuel, fuel feed system, the fuel supply chain, fuel delivery and storage and the arrangements that have been investigated to secure fuel
- A breakdown of emissions factors for NO_x, particulates and any other harmful from the biomass boiler.
- An assessment of the impact of the emissions to ground level concentrations and any additional impact to surrounding buildings/structures. It would be most helpful if the results of dispersion modelling were presented on a map

[5] Clearing the air. The Mayor's draft Air Quality Strategy for consultation with the London Assembly and functional bodies. October 2009.

8.3 Details required in relation to liquid biofuel applications

- Details of the manufacturer's warranty for the use of the proposed liquid bio-fuel in the CHP unit chosen
- Confirmation of the blend and standard of biofuel to be used (typically B100 BS EN 14214)
- Details of potential supplier(s) of the bio-fuel to be used and written confirmation that they can supply the required quantities
- Information relating to the maintenance regime of the CHP as a consequence of biofuel use
- Review air quality implications of bio-fuel with borough air quality officers
- Information relating to the sustainability and carbon intensity of the bio-fuel in line with the Government's Renewable Transport Fuel Obligation (RTFO) carbon and sustainability methodology for bio-fuels
- Details of how the fuel will be stored on site
- The running costs of a CHP utilising biofuel will typically be higher than a conventional CHP engine using natural gas. Confirmation that this increased running cost has been acknowledged and that it will not affect the proposed operation of the CHP is required.

8.4 Details required in relation to photovoltaic applications

Where the use of photovoltaic panels is appropriate the following information will also be required:

- Drawings showing the amount of roof that is available within the development and that could be used to install photovoltaic modules with suitable orientation and free of shading
- Quantification of the amount of roof area that could be used to install photovoltaic modules
- An estimate of the electricity that the photovoltaic modules may generate including the assumptions for the calculations
- A calculation of the CO_2 savings that may be realised through the use of this technology.

8.5 Details required in relation to wind energy applications

Where the use of wind energy is considered appropriate the following information will be required:

- Estimation of the wind resource on-site at turbine height. The use of the UK Wind Speed (NOABL) Database on its own is unlikely to be appropriate to estimate the wind resource for the majority of wind energy applications in London. Instead, methodologies that modify the wind resource considering the type of terrain (flat terrain, farm land, suburban, urban etc) and surrounding obstacles should be used, e.g. Carbon Trust Wind Energy Calculation Tool. (http://www.carbontrust.co.uk/windpowerestimator)
- Drawings showing the wind turbine location and height in relation to the surrounding structures and including the predominant wind directions
- An estimate of the electricity that the wind turbine/s modules may generate and calculated using the estimated wind resource and the wind turbine characteristics, i.e. power curve if available or a specific turbine swept area.
- A calculation of the CO_2 savings that may be realised through the use of this technology.

8.6 Details required in relation to Solar Thermal

Where the use of solar thermal collectors is appropriate the following information will also be required:

- Consideration of their appropriateness for the development
- Clarification to how the solar thermal collectors will operate alongside the communal heating system being proposed by the applicant
- Drawings showing the amount of roof that is available within the development and that could be used to install solar thermal collectors with suitable orientation and free of shading
- Quantification of the amount of roof area that could be used to install solar collectors
- An estimate of the heating requirements that the solar thermal collectors may provide including the assumptions for the calculations
- A calculation of the CO_2 savings that may be realised through the use of this technology.

8.7 Details required in relation to ground/water source heat pumps

Where the use of ground source heat pumps is appropriate the following information will also be required:

- Consideration of their appropriateness for the development
- Clarification to how the GSHP will operate alongside any other heating/cooling technologies being specified for the development and alongside communal heating systems being proposed by the applicant
- An estimate of the heating and/or cooling energy the GSHP may provide to the development and the electricity the heat pump would require for this purpose.
- The estimation of the amount of heating/cooling that the GSHP may supply should be supported with the following information:
    - For closed loop systems an indication of the land area available that would be required to install the required number of boreholes should be included in the energy assessment. Where possible, the ground conditions of the specific site should be taken into account for the calculations.
    - For open loop systems (including aquifer thermal storage systems) the flow rate of water that is available on-site should be included in the energy assessment and it should be used to estimate the amount of heating/cooling the system could provide.
- Details of the Coefficient of Performance (COP) and Energy Efficiency Ratio (EER)
- An indication of the seasonal COP and EER of the heat pumps is required
- A calculation of the CO_2 savings that may be realised through the use of this technology.

8.8 Details required in relation to air source heat pumps

Where the use of air source heat pumps is proposed the following information would also be required:

- Consideration of their appropriateness for the development
- Clarification to how the ASHP will operate alongside any other heating/cooling technologies being specified for the development (i.e. how

will the ASHP operate alongside communal heating systems, and/or combined heat and power plant, biomass boilers, solar thermal, etc. if they are also being proposed by the applicant)

- An estimate of the heating and/or cooling energy the ASHP would provide to the development and the electricity the heat pump would require for this purpose
- Details of the Coefficient of Performance (COP) and Energy Efficiency ratio (EER) of the proposed heat pump under test conditions.
- Evidences that the heat pump complies with the minimum performance standards as set out in the Enhanced Capital Allowances (ECA) product criteria note for the relevant ASHP technology (August 2009 guidance notes posted at http://www.eca.gov.uk/etl/criteria/)
- Evidences that the heat pump complies with any other relevant issues as outlined in the Microgeneration Certification Scheme Heat Pump Product Certification Requirements document at http://www.microgenerationcertification.org/Product+Manufacturers+and+Installers/Products
- An indication of the seasonal COP and EER of the heat pumps is required
- A calculation of the CO_2
- savings that may be realised through the use of this technology.