MARKHAM

Appendix 'A'

Conditions of Site Plan Approval
Markham Stouffville Hospital SC 09-110229

1. That ***prior to the site plan and elevation drawings being endorsed*** by the Director of Planning and Urban Design or her designate, the Owner submit revised site plan and elevation drawings, including any revisions arising from the following:

   a) Recommendations of the final copy of the "Markham Stouffville Hospital Site Plan Concept Urban Transportation Considerations" dated February 2009 by BA Group.
   b) Recommendations of Noise and Vibration Assessment prepared by a qualified acoustic and vibration engineer.
   c) Recommendations of the Functional Servicing Report.
   d) Identification of the 12 metre strip of land along 9th Line for Greenway purposes.
   e) Identification of the required road widening along Church Street to accommodate a 25.0 metre ROW.
   f) Identification of any road widening on 9th Line and daylight triangles at the intersection of Street 'A' to the satisfaction of the Region of York.
   g) Interim location of the Heliport Pad.
   h) Clarification that all future Medical Office Building (MOB) are not a part of this application.
   i) Identify the extent of the lands subject to this site plan approval (proposed property line between MSH lands, MDE, future EMCC & L lands and extent of Participation House lands).
   j) Identification of all requirements of the Fire Department for hydrants, fire access route signage and rapid entry key box locations.
   k) Site statistics table to identify information for each building, comprehensive legend and key map.

2. That ***prior to the site plan and elevation drawings being endorsed*** by the Director of Planning and Urban Design or her designate, the Owner shall submit the following studies and plans for approval:

   a) The finalized copy of the "Markham Stouffville Hospital Site Plan Concept Urban Transportation Considerations" dated February 2009 by BA Group, to evaluate the potential traffic impacts from the proposed development and to determine access location(s) to the property, traffic controls, roadway improvements, shared opportunities and other mitigation measures. The Owner agrees to make any revisions to the site plan and access locations that may be required to achieve the recommendations of the traffic analysis;

b) a noise and vibration assessment, prepared by a qualified acoustic and vibration engineer that the noise and vibration generated by the hospital will meet all the MOE guidelines and other applicable legislation;

c) a geotechnical report, prepared by a qualified professional engineering consultant, experienced in geotechnical engineering, to evaluate the ground water level and any impact on underground structures, to provide design parameters for pavement structure and pipe beddings.

d) an illumination plan for review and approval to the satisfaction of the Director of Planning and Urban Design. The illumination plan may be subject to peer review at the applicant's cost. The Owner agrees to make any revisions to the site plan that may be required to ensure that the residential properties to the north and to the west are not negatively impacted by the lighting from the proposed development.

e) a landscape plan, prepared by a landscape architect having O.A.L.A. membership, be submitted to the satisfaction of the Town Architect, including details of the "public streetscape" treatments along all roads and private driveways.

f) the Owner shall meet with the Fire Department to finalize the location of the Fire Department connection, private hydrant, fire access route signage and rapid entry key box, to the satisfaction of the Fire Chief.

g) the Owner shall meet with the Engineering Department to finalize the design of the site servicing and grading, municipal service connection locations, sediment and erosion control plans, Functional Servicing Report (in particular, verifying the capacity of the downstream conveyance system and stormwater management pond capacities), plan and profile of external infrastructure including Street 'A' and associated underground services that will be assumed by the Town. Drawings are to be prepared and stamped by a Professional Engineer with a Certificate of Authorization from the Professional Engineers of Ontario;

h) Provide environmental clearances for land conveyances to the Town for Golden Jubilee Greenway and Street 'A' and all easements where municipal services are to be installed.

3. That the ***prior to the execution of the site plan agreement***, the Owner shall:

a) obtain final approval from the Region of York concerning the design of the new 9th Line access, road improvements, grading, drainage, utility relocations, daylight triangles and traffic requirements for this site.

b) submit a Development Phasing and Staging Plan and a Sediment and Erosion Control Plan to the Toronto and Region Conservation Authority for their review and approval;

c) obtain final approval and permits from the Toronto and Region Conservation Authority concerning the removal of the drainage channel.

d) final R-Plans prepared by a qualified surveyor, for review and approval to the satisfaction of the Town and the Region. The R-Plans will include, but not limited to, road widenings, land conveyances to the Town or Region, easements for access, underground services (on and off-site) and cross use easements.

4. That the Owner ***enter into a site plan agreement*** with the Town of Markham, containing all standard and special provisions and requirements of the Town and other public agencies to the satisfaction of the Commissioner of Development Services, including:

a) Provision for the payment by the Owner of all applicable fees, recoveries, development charges, parkland dedications and financial obligations related to applicable Developers Group Agreements;

b) Conveyance to the Town, free of costs and encumbrances, a 12 m strip of land along 9th Line as greenway. The Owner covenants and agrees that these lands shall not comprise part of the parkland dedication attributable to this site plan. And provide an environmental clearance for the lands to be conveyed to the Town. The Owner acknowledges that the remainder of the lands to be conveyed as part of the Golden Jubilee Greenway adjacent to Participation House shall be conveyed to the Town upon expiry of the long term lease with Participation House and the redevelopment of the land (whichever is the earlier date).

c) The location, size and construction of all internal refuse storage areas be approved to the satisfaction of the Town of Markham Waste Management Department;

d) Provisions requiring the Owner to implement the sustainable design initiatives as outlined in Appendix 'B' attached to the report dated May 5, 2009. These initiatives shall include provisions for the Fatal Light Awareness Program (FLAP), including:
   i. Reduction in intensity levels and night lighting from 11 pm to 7 am.
   ii. Provide education and signage to switch off lights during 11 pm to 7 am.
   iii. Extinguish all exterior vanity lighting during migratory periods.
   iv. In instances when lights must be left on at night for safety purposes, adopt alternatives to bright, all-night, floor-wide lighting.
   v. Install translucent glass on windows to reduce the reflective glazing on ground floor fronts.

e) Provisions for 50% of the land and construction costs of Street 'A' from 9th Line to the east limit of the hospital land which will front onto Street 'A' as identified in the Cornell Secondary Plan. The agreement condition will state that the Owner will construct Street 'A' to approximately the first entrance east of 9th Line to the hospital site. For the remaining section of Street 'A', the Owner will construct at a later stage or provide funding for a third party to construct. The Owner will operate and maintain Street 'A' as a private driveway and will be responsible for all maintenance and repair until it is assumed by the Town at no cost to the Town. The Town will assume Street 'A' only when it is fully constructed and operational from 9th Line to Bur Oak Avenue and all assumption conditions as laid out in the agreement are met.

The Owner shall be bound by the clauses and provisions in the Site Plan Agreement pertaining to these works, including any necessary guarantees to the satisfaction of the CAO and the Town Solicitor.

f) Provisions for cross use easements in favour of the Town for the private east-west driveway at the south portion of the Hospital and other required easements including but not limited to servicing.

g) Provide external municipal services (storm and sanitary sewers, watermains), secure easements in favour of the Town or dedicate the land to the Town. Operate and maintain external services under assumption by the Town at no cost or encumbrances and subject to assumption conditions. These external works shall include:

- secure land for construction of Street 'A';
- pay for and construct Street 'A' to municipal standards
- convey Street 'A' to the Town at no cost or encumbrances when Street 'A' is completed from 9th Line to Bur Oak Avenue;
- maintain Street 'A' until assumption by the Town;
- construct and pay for external municipal services (storm and sanitary sewers, watermains);
- secure easements in favour of the Town for all external services;
- convey all external services to the Town, at no cost or encumbrances when accepted by the Town;
- maintain all external services until assumption by the Town;

Alternatively, the Owner may be required to enter into a construction agreement for the design, construction, and maintenance of the external services if the conditions are not included as part of the site plan agreement or if revised or new conditions are required that are not part of the site plan agreement.

4. The Owner shall obtain approval of an additional zoning by-law amendment for the lands north of Church Street and the additional lands at the southern portion of the Hospital lands.

5. The Owner shall submit a sign uniformity plan for review and approval to the satisfaction of the Director of Planning and Urban Design or her designate.

6. That a site plan agreement be executed prior to final approval of the plans.

7. That this endorsement shall lapse and site plan approval will not be issued, after a period of three years commencing May 5, 2009 in the event a site plan agreement is not executed within that period.

APPENDIX

B

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April 24, 2009

Suman Bahl
Director of Redevelopment
Markham Stouffville Hospital
381 Church Street
Markham, Ontario L3P 7P3

Re: Markham Stouffville Hospital – Sustainability Objectives

Dear Suman,

The following documents our sustainability objectives:

LEED

Leadership in Energy and Environmental Design (LEED) is a system developed by the US Green Building Council that can be applied to new and renovated buildings in Canada. The intent of a LEED analysis of a building is to quantify the performance of the building in terms of: impact on the environment, use of natural resources, occupant comfort, and cost of operation. The grading of the building, in terms of credits achieved, results in a LEED classification from Certified (the first level) to Silver, Gold, and finally Platinum (the highest level).

LEED application is aimed primarily at commercial office buildings. Hospitals by their nature use far more natural resources than office buildings, and thus the measures required to achieve higher LEED levels are far more expensive. In addition, hospital design is governed by various Code and Regulatory bodies that mandate the minimum building systems performance levels for life safety, infection control, and clinical functionality reasons; the opportunities to apply LEED initiatives are thus often limited due to these requirements.

Urban Heat Island Effect

Roof / New Roof

• In order to reduce the effects from Heat Island effect on the roof, ENERGY STAR and emissivity materials will be specified. The installation of "white roof" compliant to ENERGY STAR's high reflective roofing will reduce heat absorption and helps cool the urban environment and the hospital itself.

Paving

• To minimize the impact on the microclimate and the urban environment on non-roof surfaces light color concrete will be used. Light color concrete that provides at least reflectance of at least 0.3%. Large trees with sprawling branches providing large surface area shade will also be used. Goal is to reduce the heat absorption on hard surfaces within the site.

Stormwater Management

Rainwater Harvesting

• Non-potable water from storm runoff can be put into beneficial use. Rainwater harvesting can be collected from different sources including rooftops, concrete patios and landscaped areas (parking areas are not recommended due to higher contamination). Landscape areas can be designed to maximize catchment area, water can be collected, detained, retained and routed for use in a irrigation.

Permeable Surfaces

• This is considered an infiltration system as described above.

Water Conservation

Low Flow Fixtures

• Low flow fixtures will maximize water efficiency within the hospital to reduce the use of the municipal water supply and wastewater systems. The hospital will employ the use of flow flush toilets, low-flow sinks and low-flow showers with the goal to reduce the aggregate use calculated to Markham Stouffville hospital by 20%.

Irrigation

• In order to reduce the need for irrigation, the majority of trees and shrubs utilized on the general site will be native or hardy adaptable species. Once established, these plants should not require a permanent irrigation system.

• In special landscape areas of high maintenance; such as primary entrances, patient and visitor courtyards, and key areas of the Central Open Space; irrigation will be required for decorative shrub and annual planting beds. This irrigation will be supplied by a buried drip irrigation system supplied from non-potable on site storage sources.

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• To aid in the establishment of the site landscaping and as a supplement to the drip irrigation, if present, lockable hose bibs should be included in strategic locations around the building perimeter.

Energy Efficiency

LEED specifies minimum energy performance levels that must be achieved by the building and systems. This minimum for new buildings is the Natural Resources Canada's Commercial Building Incentive Plan (CBIP) requirement for a 25% reduction in energy usage as compared to a reference building designed in accordance with the Model National Energy Code for Buildings (MNECB). Additional credits are given for performance better than the 25% reduction below MNECB. For hospital design we have found that the 29% better than MNECB level (2 credits) is quite achievable, 33% is possible (3 credits), and 38% (4 credits) and higher becomes increasingly costly on a diminishing returns basis.

Indoor Air Quality

Indoor environment quality for building occupants is another area where LEED specifies and guides the design direction. In terms of Indoor Air Quality, LEED requires that the American Society of Heating Refrigeration and Air conditioning Engineers (ASHRAE) Standard 62 be applied for ventilation air rates introduced into the building. Hospital design codes also specify minimum ventilation air rates, as well as how air distribution and movement is handled (ie from clean to less clean areas); these codes mandate levels which exceed the ASHRAE 62 minimums. Higher ventilation rates are a benefit to building occupants, however treating outdoor air for ventilation purposes also increases energy usage.

Some LEED credits that relate to IAQ are not applicable to hospitals. A typical office building can obtain a LEED credit for monitoring ventilation air rates and reducing during low occupancy periods in order to save energy. This option is not available to hospitals due to the minimum ventilation rates that must be maintained at all times. The LEED ventilation effectiveness credit encourages under floor supply and displacement ventilation systems which are not permitted in hospital designs due to infection control issues. Further, this credit involves extensive testing and verification procedures, which add to the development and construction cost of the project. In practical terms, the higher ventilation rates mandated by hospital codes, as compared to LEED baseline systems, provide effective ventilation of the spaces.

Other LEED IAQ credit items such as construction phase IAQ, specifying low emitting materials (minimizing off-gassing levels), and chemical use are typically achievable at reasonable premiums.

Smart Commute

Traffic congestion is a problem across York Region and will become a greater issue as Markham, Richmond Hill and their neighbouring communities continue to grow.

- For businesses, traffic congestion results in lost time, lower productivity and higher transportation costs.
- For employees, stress of the daily commute on congested roads negatively affects the quality of their life and work.

Richmond Hill, Markham and the Regional Municipality of York are building more roads and expanding public transit services to help with traffic congestion. However, there is still a need to reduce the number of single occupant vehicles on our roads. The best way to do this is by offering employees Smart Commute options to get to work and home again. These include walking, biking, public transit carpooling and HOV lanes on roads.

Markham Stouffville Hospital will do their part to facilitate these activities by accommodating for example parking spots nearer the facility dedicated to car pools. Bus stops are strategically located on hospital grounds to promote transit as an alternative to parking. The absolute minimum number of parking spots required by zoning will be built.

The hospital web site will have a list of carpool groups as well as individuals looking to share. Bike racks will be located near hospital entrances and be designed in some cases with cover and with proper lighting and pleasant landscape surroundings. Showers will be provided to employees who ride their bikes to work.

Building Architecture

The building architecture will follow sustainable design principals:

- The design will introduce as much day-lighting as possible
- The hospitals occupants with special attention to its inpatient users will be given the best views
- The building envelop will be designed to provide a thermal envelop
- The use of energy efficient systems including heat recovery where possible
- Internal circulation will be designed to allow for a efficiency

FLAP (Fatal Light Awareness Program)

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The following is our initial approach to the concerns of FLAP (Fatal Light Awareness Program). Quotes from FLAP in italics followed by our proposed strategies:

LIGHTING CONTROL STRATEGIES

Program building's lighting system to achieve a measurable reduction in night-lighting from 11 PM to 7 AM, or - ideally - ensure that all lights are switched off during that period.

- As this is a hospital it will not be possible to switch all lights off between 11pm and 7am.
- The lighting system in the new building will be controlled by a programmable low voltage system. Lighting in non-public areas and non-patient room areas will be programmed to turn off or dim from 11pm to 7am.
- In particular the glazed stairs will dim during this period. Motion sensor activated lights will be studied for these areas.

Extinguish all exterior vanity lighting (roof-top floods, perimeter spots...) during the migration periods.

- The project has very little exterior vanity lighting. Nonetheless exterior vanity lighting will be programmed to turn off or dim during migration periods. In particular the "beacons" on top of the north east and south east stairs will dim during these periods. These beacons are a way-finding element for the community and require some level of illumination.
- Helipad lighting only comes on immediately before take-off and landings.
- We do not have any up-lights on the facade of the building.
- Lighting over building entrances and exits must remain on for safety and security reason.
- All light fixtures will comply with "dark sky" requirements.

When lights must be left on at night, examine and adopt alternatives to bright, all-night, floor-wide lighting.

- The majority of the building facades, Levels 3 and 4 are patient rooms and will therefore, generally, be dark during the night.
- Level 2 has a fair amount of glass that allows light into corridors that service Operating Rooms and Diagnostic areas and must have good lighting levels. We intend on studying strategies to mitigate the light effect on this floor.
- Level 1 is below grade on the north and is the emergency entrance on the south and will therefore not be possible to reduce lighting levels in this area.

OTHER STRATEGIES

- We will have drapes and blinds

- The majority of the North facing Second floor glass will be translucent, thereby reducing the "fly-through" effect.

EDUCATION

The program also states that Education of staff is critical to the programs success. We will be implementing the following as part of our signage package and operations.

- Elevator News
- Lobby Signage
- E-mail migration alert to tenants and staff in spring and fall
- Educational Displays
- Bulletins
- Tenant and employee workshop
- Tenant manual
- Notice in seasonal newsletters to tenants

Regards,

Douglas Birkenshaw

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