



**SITE
DEVELOPMENT
CONTROL
GUIDELINES**

UNIVERSITY of GUELPH
RESEARCH PARK SITE DEVELOPMENT CONTROL GUIDELINES

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INTRODUCTION

The Research Park was established, and continues to be developed by the University of Guelph for research, development and related professional support activities and offices in accordance with its policy statement as set out in Section 1.0 University of Guelph Research Park, Strategic Focus & Tenant Criteria. It is the intent of these guidelines to establish a Research Park in which corporate, government and research facilities requiring synergistic interaction will be developed. The Research Park will provide a real and practical interface between the University's academic and scientific resources and the public.

The University of Guelph Research Park is comprised of two parcels: a 12 ha parcel located at the south side of Stone Road, west of Gordon Street; and a 6 ha parcel located north of Stone Road between Edinburgh Road and Chancellors Way. The Research Park is bounded on the west by Wellington Woods Family Housing and on the south side by single family residences. The property is further bounded on the east by The Athletic Club and a hotel and conference centre, Future Inn. Research Park North is bounded on the north by the "Dairy Bush", on the west by residential designed for students, and on the south by commercial development.

The *Research Park Site Development Control Guidelines* assist and inform the developer during the planning and development of facilities and ensure that a high quality built environment is achieved consistent with the goals and objectives of the University of Guelph Research Park. These guidelines are to be used as a source of the minimum requirements and recommendations for site development within the Research Park. These guidelines apply to the following phases of site development:

1. Preliminary Site Design
2. Final Working Drawings
3. Project Installation
4. Site Maintenance
5. Future Site Revisions or Additions

CAUTION

These requirements are in addition to and in conjunction with all other legal and contractual requirements.

The University of Guelph reserves the right to amend, modify, or alter any or all portions of these *Guidelines* without notice or liability to the Developer or tenants. Applicants must assure themselves that they have the most current edition of these *Guidelines* before initiating any projects to which the *Guidelines* may apply.

Applicants should contact the University of Guelph Real Estate Division regarding any inquiries related to these requirements or procedures.

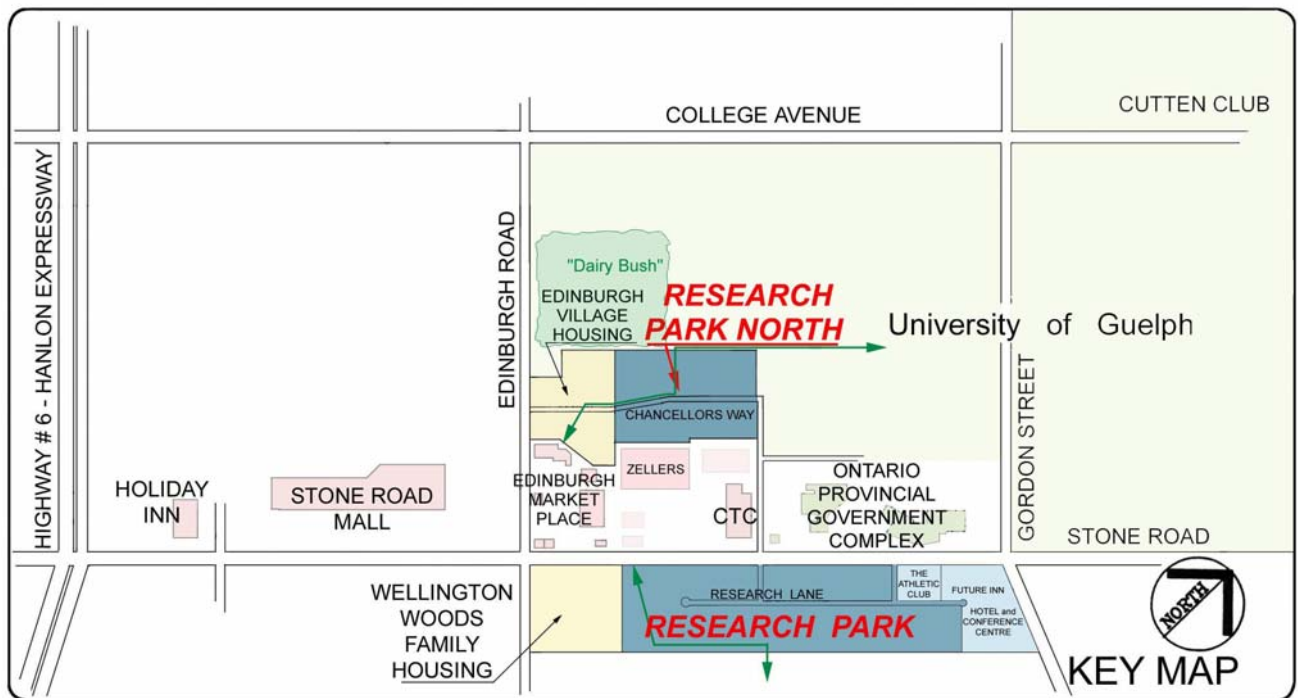
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RESEARCH PARK

UNIVERSITY of GUELPH



1.0 STRATEGIC FOCUS & TENANT CRITERIA

1.1 Strategic Focus

The University of Guelph and the surrounding city comprise one of Canada's largest grouping of organizations with a common interest in agriculture, food, life sciences, biotechnology and the environment. Many of the companies and farm organizations that have gathered here benefit from the faculty, staff and students of the University, and from the close proximity of the Ontario Ministry of Agriculture and Food, whose headquarters is located adjacent to the campus and Agriculture Canada.

While it is true that these companies and organizations benefit from the proximity to the University, the University also recognizes that its core mission in the life sciences is greatly enhanced by a vibrant economic cluster in the community. This cluster creates employment opportunities for graduates, and many of the faculty benefit from research opportunities that spring from collaborations with the private sector.

The University of Guelph Research Park was developed by the University on land adjacent to the campus and to the Ontario Ministry of Agriculture and Food ("OMAF"). The Research Park contains a University-owned building that provides rental space, private sector single use and multi-tenant buildings and land on which organizations can build their own facility. There are two main purposes of the Research Park: (1) to generate revenue to the University through the development and leasing of land or rental facilities to organizations seeking facilities in Guelph; and (2) to facilitate synergy and partnerships between the University and the many organizations who locate to the Park. Generation of net revenues through University-owned facilities or leasing of land for the construction of facilities to be owned by other organizations are to be transferred to the endowment fund of the University to contribute to the University's long term financial stability and to its ability to support quality education and research.

The Research Park provides an opportunity for the University to create a strategic economic cluster within Guelph. It helps the University to solidify Guelph's position as a national leader in agri-food and life sciences, and helps the City of Guelph to profile itself as a centre for life sciences.

1.2 Tenant Criteria

New tenants are selected based on several criteria. While their principal activity does not have to be in the agri-food or life sciences area, given the research profile of Guelph and the proximity of the Ontario Ministry of Agriculture and Food, it is anticipated that the majority of interested Park tenants will be from that sector. They must be organizations or companies participating in the growth of a knowledge-based economy. There must be some mutual value in them being near the university, and they must meet one or more of the following criteria.

- (a) Provide University personnel with access to specialized laboratories, equipment and research space not available on campus.
- (b) Directly or indirectly, do research at the university or act as a source of funds to support University research.
- (c) Have their own research programs that are complementary or synergistic with University people or infrastructure.
- (d) Provide educational, training and employment opportunities for Guelph students, complementary to the strategic focus of the Research Park.
- (e) Have the potential to develop into an entity that would be a user of or a joint participant in the University's research program.
- (f) Have interests which coincide with one or more of the University's strengths and be an ally in promoting the University's interests with government and other external bodies.
- (g) Be a spin off group devoted to commercializing research results from the University.
- (h) Provide an integral service to the University and other Park tenants in meeting the strategic focus of the Research Park.

In addition, all tenants must meet standard leasing arrangements, such as financial capability, commitment, and acceptable terms.

The suitability of tenants for occupancy in the Park is subject to the approval of the University of Guelph's Vice-President (Finance and Administration) and the Vice-President (Research).

2.0 GENERAL REQUIREMENTS

- 2.1 The requirements specified by these *Guidelines* shall not limit the legal liability of the Developer from compliance with any Federal, Provincial or Municipal by-law, statutory requirements, regulation or covenant.
- 2.2 In addition to these *Guidelines* and other statutory requirements, all developers are to note that the title to the land in the University of Guelph Research Park is subject to building and land use restrictive covenants which control the timing and nature of development and are more particularly set out in the Development Agreement.
- 2.3 It is required that all design drawings shall be prepared and stamped by an architect, professional engineer, and landscape architect (as required) prior to submission to the University for review and approval.
- 2.4 The University of Guelph and tenants have a continuing interest in the lands within the Research Park. These *Site Development Control Guidelines* are intended to protect these interests and they will be implemented through the use of development covenants contained within the lease. Approval of the design drawings is to be obtained from the University prior to any submissions to the municipality. For further guidance see Appendix B Checklist for Research Park Development Procedures - Site Development.

3.0 CONTROL PROCEDURES

3.1 Pre-design Conference

Prior to committing to any lot or building design, the Developer and their professional consultants should meet with the University of Guelph Real Estate Division and/or its designated consultants, to review the University of Guelph Research Park Site Development Control Guidelines and the Developer's proposed project program. The University will consult with the Developer to determine the size of lot needed to accommodate the developer's building and site needs.

At this meeting the Developer will be expected to outline to the University, the project in terms of its land use, building size, building mass arrangement, tenant or tenants, number of potential employees, kinds of projects, material use expected (especially any hazardous materials), financing budget, and proposed construction timetable.

3.2 Design Review

In accordance with Section 41 of the Planning Act, R.S.O. 1990, all Developers are required to submit drawings to the City of Guelph Department of Planning & Development. Prior to submission to the City, Developers are also required to submit drawings to the University of Guelph for Site Plan Review with respect to these Guidelines. It is recommended that a two stage submission be made to both parties; consisting of a preliminary submission at the completion of the design phase and a final submission for approval. For further guidance see Appendix B Checklist for Research Park Development Procedures - Site Development.

It is required that in addition to the drawings required by the City of Guelph and identified in their current Site Plan Approval Guidelines, three additional copies be submitted to the University of Guelph, Real Estate Division, together with the information contained in the Checklist (Appendix B).

Note: the above submission requirements are part of the process documented under the section "Formal Review" of the current *City of Guelph Site Plan Approval Guidelines* (Section 41 of the Planning Act, R.S.O. 1990), and is an additional and separate (Review and Approval) submission to the University of Guelph Real Estate Division.

3.3 Final Approval

Provided that the project meets all design criteria as outlined in these *Guidelines*, final approval of the project will be granted by the University of Guelph upon receipt and review of all required Construction Documents and Final Site Plan (Section 41) Documents as submitted to the City of Guelph for Building Permit application.

3.4 Field Reports and Change Orders

During construction the developer shall promptly forward copies of all consultant Field Review reports, Change Orders or any other construction administration documentation to the University of Guelph Real Estate Division.

The University of Guelph reserves the right to approve any such changes that will affect the quality of the finished project. Therefore, prior to any changes being made, the developer must provide the University with the relevant documentation for review and approval.

3.5 Inspections

The University of Guelph or its designated representative reserves the right to review and/or inspect the Work during construction.

3.6 As-built Drawings

The Developer shall submit to the University of Guelph within two months of final completion of the building one complete set of drawings, complete electronic drawing files and specifications in formats as specified in Appendix B - Checklist for Research Park Development Procedures - Site Development or as otherwise specified by the Real Estate Division of the University of Guelph fully documenting approved as-built conditions within two months of final completion of the project.

The Developer acknowledges that the University of Guelph shall retain as security the sum of \$50,000.00 as a Site Development Control Deposit to secure the obligations contained herein until the “as-built” drawings have been approved by the University of Guelph, whereupon the said security shall be released to the Developer.

3.7 University Review of Submissions and Site Inspections - Fees

The University of Guelph Real Estate Division reserves the right to engage specialist consultants (architects, engineers, landscape architects) to review, on their behalf, submissions by Developers and work-in-progress as noted.

Fees will be borne by the Developer and shall be based on the consultants’ per diem rates. The completeness of submissions and their adherence to the regulations, requirements, and these *Guidelines* will affect the effort required by the Real Estate Division in their reviews and site inspections.

3.8 Securities

Upon final approval pursuant to Section 3.3 of these *Guidelines*, the Developer will deposit with the University of Guelph to cover the faithful performance of the *Site Development Control Guidelines* and the payment of all obligations arising thereunder the following securities:

1. cash, or
2. an irrevocable Standby Letter of Credit from a chartered bank, issued in accordance with the policy of the University of Guelph respecting Letters of Credit.

The Letter of Credit shall be for a minimum guaranteed period of one (1) year and shall be in a form that automatically renews for one year periods in the amount of \$50,000.00. Letters of Guarantee will not be accepted by the University of Guelph.

The University of Guelph reserves the right to accept or reject any of these alternative methods of providing securities and to increase or decrease the amount of the deposit at its sole and absolute discretion.

4.0 SITE PLANNING GUIDELINES

The Research Park is designated as a Special Institutional Zone (I.2-1) (By-law Number 1995 - 14864 as last amended by By-law [1997] - 15378, amended by the Ontario Municipal Board File No. PL 971055, PL070903, Order No. 0703, issued May 29, 2002). This by-law permits all uses common to the University of Guelph plus a number of uses, which are compatible with institutional functions such as research and supportive functions.

Zoning restrictions which are unique to the Research Park were primarily the result of negotiations held during the development of the by-law between the University, City of Guelph and the residential property owners to the south of the Research Park. The general intent of these restrictions is the reduction of visual and acoustical impact from within the Research Park on the existing Harvard Road residential properties. Three specific zones are identified in the by-law which serve to restrict development in proximity to the residential properties on Harvard Road (see Appendix C - Illustrative Site Development Criteria - Research Park).

The first Research Park zone is a 20 m wide landscape buffer strip consisting of berms and planting with no permitted interruptions except for a pedestrian access point at the road allowances of Grierson Drive.

The second Research Park zone, 61 m wide along most of the southern boundary of the Research Park limits building height to 7.5 m. This zone further prohibits the location of any loading and/or refuse storage within this area. The height limit has been amended to 8.5 m by Committee of Adjustment for selected areas related specifically to the site of the Research Park Centre.

The third Research Park zone restricts building height to 5 storeys and is applied to the balance of the Research Park site.

Other setback, side yards and density controls are similar to normal Institutional zoning requirements. Consult the current City of Guelph Zoning by-law for detailed requirements.

Research Park North is zoned I.2-2 in the City of Guelph's Zoning By-law, as found in City of Guelph By-law (1995) - 14864 as last amended by By-law (1997) - 15378, amended by the Ontario Municipal Board File No. PL 971055, PL070903, Order No. 0703, issued May 29, 2002.

4.1 General Planning Criteria

The general site planning criteria, which govern development in the University of Guelph Research Park, are reflected in these *Site Development Control Guidelines* and include:

- creation of an attractive built environment characterized by high quality site planning, architecture, and landscape design;
- creation of a built environment in which both common and private facilities are continuously well maintained and operated, with special sensitivity to neighbouring properties;
- provision of a traffic and circulation system to meet the requirements of all Park Tenants;
- provision of safe, adequate, economic and reliable utility systems to serve all Research Park tenants;
- development of Special Institutional land uses in the Research Park where certain variances to the City of Guelph's Institutional Zoning are encouraged within the Research Park, under circumstances and conditions as described in the Special Institutional zoning and these *Site Development Control Guidelines*;
- provision of a landscaped buffer strip to separate Research Park development from neighbouring residential properties to the south;

- provision of landscaped buffer strips to separate Research Park North development from neighbouring residential properties to the west and north, commercial properties to the south, and the “Dairy Bush” to the north.

4.2 Site Planning Definitions

Amenity Area - means space provided for active or passive recreation and enjoyment by occupants of the Research Park during the hours which the Park is open to the public, and which shall be owned and maintained by Park tenants subject to the regulations of these *Guidelines* and the City of Guelph Zoning By-law (also see Open Space).

Accessory Use - means a use of building or land which is normally and naturally incidental, subordinate and devoted to the principal use of the building or land, and located on the same lot or site but not for the purpose of human habitation.

Coverage, Site - means the total horizontal area of all buildings or structures on a site which are located at or higher than 1.0 metre above average finished grade. This definition does not include:

- steps, eaves, cornices and similar projections;
- driveways, aisles and parking lots unless part of a parking garage structure which extends more than 1.0 metre above grade;
- unenclosed inner and outer courts, terraces and patios less than 1.0 metre in height above average finished grade.

Floor Area, Gross (G.F.A.) - means the total of all floor areas of a building or structure, contained within the outside surface of the exterior and basement walls.

Landscape, Hard - consists of non-vehicular landscape treatments such as sidewalks, exterior unenclosed courtyards/plazas, playgrounds, walls, lighting, signs, etc. where non-vegetated surfaces are predominate.

Landscape, Soft - consists of landscape treatments characterized by live vegetated surfaces, such as grasses, groundcover beds, tree and shrub plantings.

Open Space - consists of all combined soft and/or hard landscape treatments as outlined above. Open space does not include parking areas, driveways, vehicular laneways, loading areas, outdoor storage areas or services and utility structures.

Setback - means the distance that a building or structure, or a specified portion of it, must be set back from a property or lease line boundary.

Street Line - means the limit of the road allowance or private road. In the case of Stone Road the street line corresponds with the property line (Stone Road right-of-way). In the case of the private road internal streets (Research Lane and Chancellors Way), the street line corresponds with the curb.

Yard - means required open space unoccupied by any portion of a building, structure, roadway, driveway, outdoor storage area, loading area or parking area (also see Open Space).

4.3 Permitted Uses

Permitted uses within the Research Park must conform to the University of Guelph Research Park, Strategic Focus & Tenant Criteria as outlined in Section 1.0 of these *Guidelines* and as outlined in City of Guelph By-law (1995) - 14864, *i.e.*:

- any University of Guelph building or use and any operation directly related to the university;
- any Use or Structure operated by the City or by any department or the Federal or Provincial governments;
- financial establishment;
- computer and electronic equipment distribution, service or assembly;
- data processing establishment;

- f) drug manufacturing;
- g) firms involved in surveying, engineering and design;
- h) offices;
- i) office or laboratory supply or service establishment;
- j) photo lab;
- k) printing or publishing establishment;
- l) production and assembly of precision and scientific instruments and equipment;
- m) research and development establishment;
- n) laboratory;
- o) restaurant or cafeteria enclosed within a multi-tenant building, with a maximum of one per building (a free-standing restaurant or cafeteria is not permitted);
- p) scientific and technological facilities;
- q) a building or use accessory to the foregoing permitted uses.

No use shall be permitted which is obnoxious, offensive or dangerous by reason of the presence or emission or production in any manner of odour, fumes, smoke, dust, noise, vibration, radiation or refuse matter.

4.4 General Site Planning Regulations

To establish and maintain the shared park-like character of the Research Park, Open Space requirements are preeminent and shall principally determine the extent and form of individual site planning and development.

General Site Planning requirements shall include:

- buildings designed functionally and aesthetically to produce a high quality business character within a cohesive park-like setting;
- building designs and elevations that are in harmony with other Park buildings, with care given to ensure that building mass is in scale with immediate surrounding areas (see Section 5.0 Architectural Guidelines);
- landscape design as an integral part of overall site planning (see Section 6.0 Landscape Architectural Guidelines);
- the comprehensive application of these *Site Development Control Guidelines* to any development on any site in the Research Park.

In the instance of disagreement or interpretation between these *Site Development Control Guidelines* and the City of Guelph planning regulations and Zoning By-law, the more stringent regulation shall take precedence and be applied.

4.5 Building Area and Coverage

1. Research Park:
The maximum Site Coverage of all buildings and structures on lots shall not exceed 30 percent of the total lot area and the resulting Open Space shall not be less than 40 percent of the total lot area including the landscaped buffer strip south of Research Lane.
2. Research Park North:
The maximum Site Coverage of all buildings and structures shall not exceed 30 percent of the total lot area and the resulting Open Space shall not be less than 40 percent of the total lot area.

4.6 Minimum Setbacks

1. The minimum setback of building and structures shall be 7.5 metres from the Stone Road street line, or from the curb-line edge of any service road constructed adjacent to and parallel to Stone Road or Gordon Street which extends beyond these road allowances (see Appendix C - Illustrative Site Development Criteria).
2. The minimum setback of buildings and structures measured from the street line (curb-line edge) of Research Lane and Chancellors Way shall be 10.0 metres.

3. The area between the street line, or the edge of an adjacent and parallel service road, and the required minimum setback line shall be used for Open Space treatments only, except where crossed by driveways approved under Section 41 of the *Planning Act, R.S.O. 1990*.

4.7 Minimum Yard Space

1. Minimum side yard space shall be calculated as twice the building height up to a maximum of 12.0 metres. The side yard shall not be less than 6.0 metres as measured from the lot lease line.
2. No building or structure (Research Park) shall be built within 35 metres of any property in the R.1B Zone except that a University student residence of three storeys or less may be located up to but not within the Landscaped Buffer Strip adjacent to the R.1B zone and part of the Community Shopping Centre (CC) zone.
3. No building or structure shall be located within 15 metres of the I.2 Zone adjacent to the westerly boundary of the Research Park's I.2-1 Zone.
4. No building or structure shall be built within 7.5 metres of the C.4-20 Zone (CC) zone.
5. No portion of any required yard shall be provided by an adjacent lot.

4.8 Maximum Building Height

1. Research Park:
The maximum height of buildings on leased lots abutting Stone Road or Gordon Street shall be five (5) storeys, not including roof-top mechanical equipment or equipment rooms.

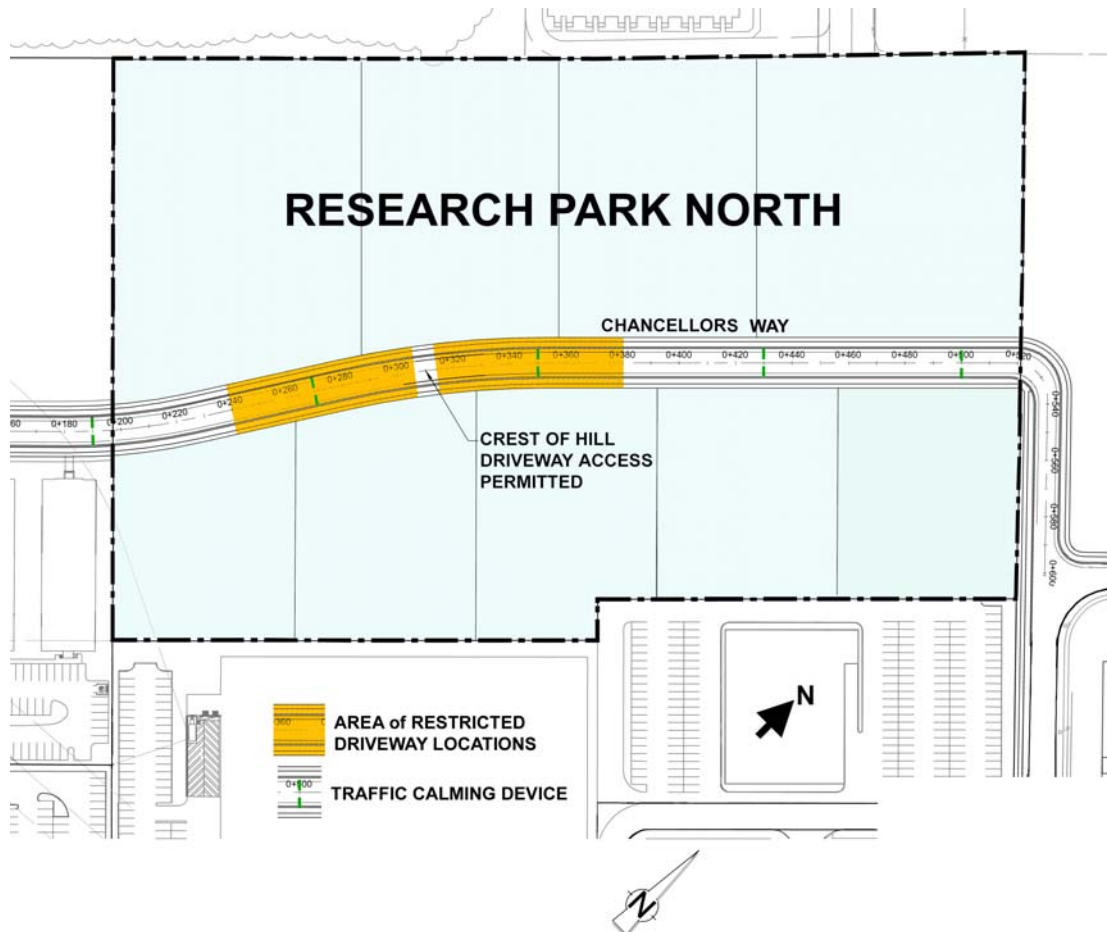
The maximum height of buildings on leased lots abutting the Landscaped Buffer Strip south of Research Lane shall be 2½ storeys, not including rooftop mechanical equipment or equipment rooms.

2. Research Park North:
The maximum height of buildings on leased lots shall be five (5) storeys, not including roof-top mechanical equipment or equipment rooms.

Notwithstanding the preceding Section buildings will be limited to a maximum of 3 storeys not including rooftop mechanical equipment or equipment rooms within 15 metres of the woodlot edge of the "Dairy Bush".

4.9 Driveways, Research Park North

Driveways and driveway locations on Chancellors Way in Research Park North will be controlled / restricted by the University due to the grades on the roadway. Driveways within 70 m of the crest of the hill as shown in the figure below will be located to provide adequate stopping sight distance. Within the 70 m band, both east and west of the crest of the hill, site access will be restricted and adjacent properties may be required to share driveways located either at the crest of the hill or beyond 70 m of the crest. Traffic calming measures, such as speed humps, will be installed frequently enough to keep speeds to 40 km/hr in order that the 70 m access restriction allows for safe stopping sight distance. Where possible, driveways shall otherwise be shared and located directly opposite each other.



4.10 Off-street Parking

Buildings and structures in the Research Park shall be provided with off-street parking in accordance with the following ratios:

| | <u>Land Use</u> | <u>Minimum Parking Space Ratio</u> |
|----|-------------------------------------|---|
| a) | University Residences | Rooms - 1 space / every 5 beds |
| | | Apartment Units - 1 space / unit |
| | | Family Units - 1 space / unit |
| b) | Institutional Uses | 1 space / 65 m ² of gross floor area (G.F.A.) (except University Residences) |
| c) | Public Assembly Facility | 1 space / each 5 persons that can be accommodated |
| d) | Restaurant, Financial Establishment | 1 space / 28 m ² of gross floor area |
| e) | Other Uses | 1 space / 37 m ² of gross floor area |

The University encourages employers in the Research Park to limit parking spaces to these ratios by implementing public transit supportive programs and encouraging employees to use other transportation modes.

In the event a prospective tenant proposes to significantly exceed these ratios, preference will be given to providing the additional parking within the building envelope. Structured parking may also be considered; however, it is not encouraged. Regardless of the number of proposed parking spaces,

all other site requirements shall be met.

In the event the presiding municipal by-law requires greater parking space ratios, the by-law will dictate minimum requirements.

4.11 Off-Street Loading and Garbage Storage Spaces

1. Research Park:

Off-street loading spaces and garbage storage areas shall be located a minimum of 61 metres from the R.1B Zone located adjacent to the Research Park southwesterly boundary.

Off-street loading spaces and garbage storage areas shall be screened from public streets, from the R.1B Zone and from the I.2 Zone adjacent to the Research Park southwesterly boundary.

2. Research Park North:

Off-street loading spaces and garbage storage areas shall be located a minimum of 20 metres from the residential lands located adjacent to the Research Park North westerly boundary.

Off-street loading spaces and garbage storage areas shall be screened from Chancellors Way and from the I.2 Zone adjacent to the Research Park North northerly and easterly boundaries.

4.12 Buffer Strips

Notwithstanding any other provisions of these *Guidelines* or Guelph By-law Number (1995) - 14864 as last amended by By-law (1997) - 15378, amended by the Ontario Municipal Board File No. PL 971055, PL070903, Order No. 0703, issued May 29, 2002, buffer strips shall be provided within the Research Park North per Section 6.0 of these *Guidelines*.

4.13 Delineation of Leased Lot Boundaries

1. All leased lots created within the Research Park shall have at least one boundary line contiguous with another existing lot boundary line, except in the case of corner lots or other instance where a specific waiver to these *Guidelines* is granted by the University of Guelph.
2. Final approval of project site boundary delineations within the Research Park shall require the Developer to define and incorporate any potential project expansions, and demonstrate the ability of such future expansion to conform with these *Guidelines* and associated City of Guelph zoning provisions to the satisfaction of the University of Guelph.

4.14 Construction Vehicle Routes

All construction vehicle routes must be approved by the Real Estate Division of the University of Guelph prior to construction of new buildings, structures, facilities.

5.0 ARCHITECTURAL GUIDELINES

The following guidelines shall be reviewed in conjunction with Section 7.0 Design and Construction Standards

5.1 Building Siting

1. Buildings shall be carefully sited to ensure that the visual quality of neighbouring properties and streetscapes is maintained or enhanced.
2. Development must respect the context of the abutting land uses with regard to building heights, massing, setbacks, materials and overall community scale. Appropriate architectural responses to the adjacent land uses will increase the extent to which the development is compatible with its urban context and differing uses that currently exist between the residential, institutional and commercial edges that border the site.
3. Buildings shall be sited and designed to ensure that adjacent properties are adequately protected from the new development's site illumination, noise and odour.
4. Buildings shall be sited to avoid the creation of a monotonous streetscape characterized by excessive repetition, or the creation of a constant wall appearance. Front and sideyard variation among individual developments along a street is encouraged to create a streetscape that has visual diversity.
5. The siting and design of new buildings shall ensure that the unsightly aspects of the development such as loading docks, waste disposal areas and snow pile areas are not focal points for public view.
6. Building siting and design shall recognize and incorporate the natural features of a site such as existing trees and contours.

5.2 Rooftop Mechanical Equipment

Rooftop mechanical equipment shall be enclosed or screened from street level view. Alternatively it shall be positioned so that it can be concealed by the use of sight line obstructions such as changes in roof level. Ground level or wall mounted mechanical equipment is discouraged. Sound attenuation strategies of mechanical equipment that might affect neighbouring residential properties shall be incorporated in the design in accordance with applicable municipal and provincial regulations and guidelines.

5.3 Building Design

1. Building design is not restricted to any particular style or character. Distinctive designs that contribute positively to the collective image of the Research Park are encouraged.
2. Buildings shall be designed to complement and contribute to a desirable community character through the judicious consideration of overall shape and form, roof lines, fenestration, material colours and textures.

5.4 Exterior Materials and Finishes

1. Building exterior envelopes shall be designed and constructed to a uniform standard of finish on all sides to ensure continuity and visual quality.
2. Exterior finishing material selections of each individual building shall contribute to the overall quality and image of the Research Park.
3. All materials shall be low maintenance and shall exhibit a durable, high quality appearance.

Material selections which allow colour to run, fade or otherwise deteriorate prematurely, either due to atmospheric conditions or when used in combination with other materials, must not be used.

4. All colours, materials and finishes are to be selected and co-ordinated on all exterior surfaces to achieve a visual continuity and comprehensive aesthetic appearance.
5. All exterior building materials shall be selected from and comply with the approved materials lists in Section 7.0 Design and Construction Standards. New and/or innovative exterior materials may be incorporated only after detailed review and written approval is obtained from the University of Guelph.

5.5 LEED™ Building Standards Designation / Certification:

Tenants are encouraged to consider developing buildings that are eligible for LEED™ Building (Leadership in Energy and Environmental Design) designation / certification. LEED™ Building is a voluntary designation / certification that may be sought by Research Park tenants for new or existing buildings. LEED™ provides a complete framework for assessing building performance and meeting sustainability goals based on standards developed by the US Green Building Council (USGBC) (www.usgbc.org).

LEED™ was created to:

- define “green building” by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market.

Sixty-nine credits are allocated under the LEED™ program criteria. Each topic area has a statement of associated goals and corresponding points attributed to each category.

- Site Development: minimize storm water run-off; encourage car-pooling and bicycling; increase urban density and increase green space
- Water Efficiency: eliminated site irrigation; reduce water consumption; minimize or treat wastewater.
- Energy Efficiency: reduce building energy consumption; use renewable energy; eliminate ozone-depleting chemicals; commission building systems
- Material Selection: minimize construction waste; adaptive re-use of existing building; use recycled and salvaged materials; use renewable construction materials
- Indoor Environmental Quality: incorporate day lighting; use low-gassing materials; provide operable windows and occupant control of workspace; improve delivery of ventilation air
- Process: use a LEED™ Accredited Professional; greatly exceed the requirements of a credit, incorporate innovative environmental features not covered in other areas.

The table below, prepared by local LEED™ Consultant Enermodel Engineering (Waterloo) summarizes the typical costs and payback periods for LEED™ buildings meeting the criteria of “Certified”, “Silver”, “Gold” and “Platinum” categories. The payback period includes only annual utility energy savings.

| | “Certified” | “Silver” | “Gold” | “Platinum” |
|-------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| LEED™ Points | 26 - 32 | 33 - 38 | 39 - 51 | 52 - 69 |
| Typical Energy Savings | 30 - 40% | 40 - 50% | 50 - 60% | 60% and over |
| Incremental Construction Cost | 2% | 5% | 7.5% | 10% |
| Annual Utility Savings | \$0.75/ft. ² | \$1.00/ft. ² | \$1.25/ft. ² | \$1.50/ft. ² |
| Typical Payback Period | under 3 years | 3 - 5 years | 5 - 10 years | over 10 years |

The larger benefit of LEED™ buildings can be measured in less tangible terms, such as improved indoor environment, lower maintenance, higher corporate profile, and reduced risk of remedial measures to deal with “sick” building syndrome or environmental contaminants. The ideals set forth by the LEED™ initiative is a reaction to the current climate of environmental consciousness and understanding of our buildings impact on the environment in which we live. LEED™ lays out the framework for how North American buildings will be conceived and executed in the future in order to meet the demands of more stringent energy codes and the trends of the public’s understanding of their role in the environment. Imparting these values on the buildings in the Research Park is in keeping with the ideals of research that will shape the future.

6.0 LANDSCAPE ARCHITECTURAL GUIDELINES

The following guidelines shall be reviewed in conjunction with Section 7.0 Design and Construction Standards and Illustrative Site Development Criteria (See Appendix C).

6.1 General

The main objective for landscape design throughout the Research Park is to present a unified character that is in context with its surroundings.

Established surrounding land uses must be respected through landscape design that is sensitive to:

- plantings along lease line boundaries;
- careful siting of storage and utility areas;
- general screening of unpleasant views into the site; and
- context.

Landscape components can be divided into two basic groups: soft landscape, and hard landscape as defined in Section 4.2.

In preparation of all landscape designs considerations must be given to:

- Stone Road;
- Research Lane;
- Chancellors Way;
- non-street boundaries;
- entrance and amenity areas;
- parking and service areas;
- building periphery.

6.2 Street Trees

All landscape plans must show and account for specific street tree plantings in accordance with the these *Guidelines*. The cost of these plantings will be the sole responsibility of the developer.

6.3 Street Frontage Plantings

1. It is recommended that plant materials to be used in the Stone Road, Research Lane, and Chancellors Way frontage areas be restricted to 2 deciduous and/or 2 coniferous species to provide continuity and to allow transition from the streetscape treatment to the individual planting designs of each site.
2. The density of street frontage plantings shall be as detailed in Section 7.1.10.
3. Plant materials used for areas other than the street frontage area and landscape buffer strips, may be of any appropriate species provided a unified design character is created throughout each site. The following tree, shrub and ground cover species are invasive and inappropriate, and are NOT permitted.
 - Manitoba Maple (*Acer negundo*)
 - Norway Maple (*Acer platanoides*), including its cultivars and varieties such as ‘Crimson King’, ‘Schwedler’, ‘Royal Red’, ‘Autumn Blaze’, ‘Crimson Sentry’, ‘Harlequin’, ‘Columnar’, ‘Cleveland’, ‘Deborah’, ‘Emerald Queen’, ‘Globe’, ‘Parkway’, ‘Summershade’, ‘Emerald Lustre’, ‘Superform’
 - Parson’s Goutweed or Snow-on-the-Mountain (*Aegopodium podagraria*)
 - Tartarian Honeysuckle (*Lonicera tatarica*)
 - Scot’s Pine (*Pinus sylvestris*) and all its cultivars and varieties
 - Buckthorn - (*Rhamnus frangula*)
 - Periwinkle (*Vinca minor*).
4. The scale and quantity of plant materials shall be proportional to the size of the building. At the

discretion of the University, densely planted sites may require selective removal of materials as part of a regular maintenance program if it is felt that over time the vegetation has become out of scale with the building.

6.4 Entry Treatments

All entrances to the site and the building must be easily distinguished by both pedestrian and vehicular traffic. Landscape features used for this purpose shall include plantings, signage and lighting.

6.5 Plant Materials

1. Selection of plant materials shall involve the following considerations:
 - year-round appearance;
 - seasonal variety;
 - context, compatibility with surrounding landscape(s);
 - hardiness (zones);
 - resistance to insects and disease;
 - individual/unique character (specimen materials);
 - maintenance requirements;
 - tolerance of plant materials to salt and other urban conditions.
2. All plant materials must be nursery grown, collected materials are not permitted.
3. Shrubs (excluding specimen plantings) shall be planted in groupings and located in continuous mulched beds.
4. Choice of plant species, spacing and specified installation size shall be based on both the desired initial effect as well as the future mature state of the planting.
5. A mixture of deciduous and coniferous materials (trees & shrubs) is required.
6. As well as the invasive and inappropriate plant species noted in Section 6.3, it is recommended that Austrian Pine (*Pinus nigra*) NOT be used as there is a high incidence of diplodia tip blight on Austrian Pines in the geographic vicinity and this disease is difficult to control.

6.6 Turf Areas

1. All areas not covered by hard surfaces, mulched beds or ground covers shall be covered with turf. Installation of turf areas shall be exclusively by sodding. Seeding is not permitted.
2. For small-contained areas, such as parking lot islands it is recommended that alternative ground covers be used.
3. Any public lands, including boulevards which have been disturbed as a result of site work must be repaired. Sod is required to re-establish lawn areas.

6.7 Screening

1. For the purposes of this document Landscape screening will include plantings, berms and fencing, or combination of the above.
2. Transitional plantings and grading are required between the existing 20 m Landscape Buffer Strip along the south boundary of the Research Park and any new site development. Transitional plantings are also required in the Landscape Buffer Strip along the north boundary of the Research Park North (see Section 6.8 for additional buffer strip requirements).
3. The property line adjacent to Wellington Woods Family Housing (Research Park) must be

screened with plant materials as a minimum requirement. Additional screening methods such as berming are encouraged in combination with this planting. (See Section 7.1.12)

4. Plantings are required along lease line boundaries within the Research Park (See Section 7.1.12).
5. Areas within the site that required adequate screening with plant materials include:
 - parking;
 - loading;
 - storage;
 - above grade utility and enclosed refuse areas.

With the exception of parking, these areas must be screened from the buildings within the property as well as from off-site views.(See Section 7.1.12 and Appendix C - Illustrative Site Development Criteria)

6. All refuse containers must be completely enclosed by a structural screen of materials similar in character to that of the main building.

6.8 Landscape Buffer Strips

Research Park:

1. Tenants whose properties include a section of the existing buffer strip must include this area on the submitted plans. These plans must include an inventory of existing materials as well as details on any proposed removal or relocation of plantings, installation of additional plantings or other landscape treatments (sodding, mulch, re-grading) (See Appendix B - Checklist for Research Park Development Procedures - Site Development).
2. When blending the existing buffer strip with proposed development, the developer must take into account the following.
 - Protect all existing trees from construction.
 - Relocate by tree spade or other acceptable horticultural means, any healthy materials which cannot remain in their original location due to site re-grading or adjacent construction. Materials must be relocated within the 20 m buffer strip only. All transplanted materials must be watered and maintained following transplant.
 - Enhance the existing buffer planting in order to unify the existing materials and blend this area with the rest of the site. New materials used for this purpose shall generally match the style and species of the existing planting.
 - Re-grade any disturbed areas to match the general topography of the existing berm.
3. Tenants responsible for maintenance of the existing buffer strip must comply with the following guidelines (see Appendix C - Illustrative Site Development Criteria for zone locations).

Zone A

This area shall be either a mulched planting bed or sod. In either case this zone must be maintained regularly in conjunction with other areas on site.

Zone B

This area may remain in its natural condition, but must be cut a minimum of two times per year.

Zone C

This area must be cut a minimum of once per month to inhibit weed growth, and maintain service/emergency vehicle access.

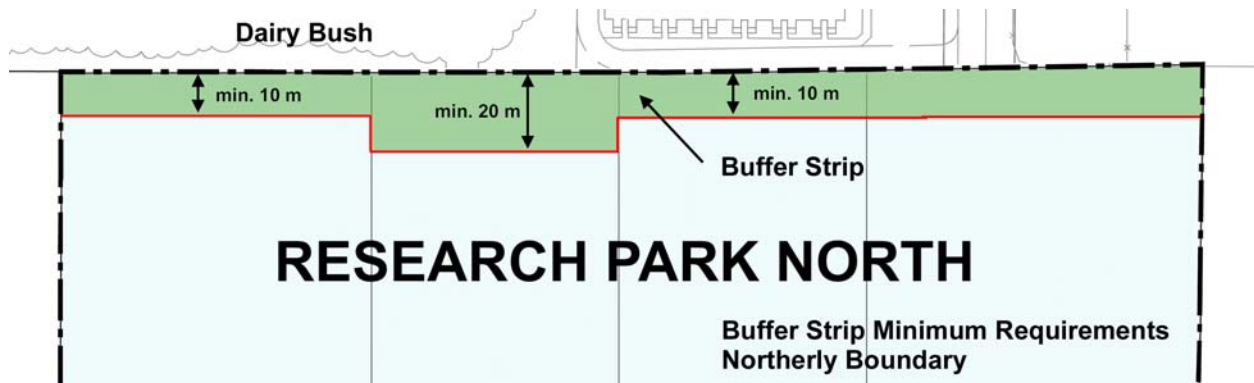
4. Although adjustments to the existing buffer strip are permitted, the 20 metre minimum width of the buffer strip must be maintained.

Research Park North:

1. A 10 to 20 metre wide landscape buffer strip is required along the northerly lease line boundary

adjacent to the “Dairy Bush” and University Housing (see illustration next page). No grading or earthworks, with the exception of tree and shrub planting shall be undertaken within this buffer strip. The buffer strip is intended to protect the “Dairy Bush” vegetation. This landscape buffer strip shall be planted with native trees and shrubs only. No exotic plant materials are to be used within this buffer strip.

2. A 10 metre wide landscape buffer strip is required along the southerly and westerly lease line boundaries adjacent to the commercial and residential developments respectively.
3. Buffer strips shall remain in a natural condition, but must be cut a minimum of two times per year. Tenants responsible for maintenance of the buffer strips must comply with this guideline.



6.9 Landscape Maintenance

1. Site maintenance must be to an acceptable horticulture standard, as determined by the University. In general, maintenance shall include removal of weeds, replacement of dead or unhealthy materials, pruning of existing materials (where required) and maintenance of established planting beds (including mulch). This level of maintenance applies to the entire site including the Landscape Buffer Strips.
2. All sites must provide an in-ground irrigation system for the maintenance of all plant material. The exceptions to this requirement are the Landscape Buffer Strips. Water conservation shall be carefully considered in the choice of plant materials to reduce the need for irrigation.
3. Snow storage areas and/or snow removal must be provided for. Snow storage areas shall not be located in high visibility areas. Large snow storage areas are discouraged. If snow is to be removed from the site, a note to this effect is required on the landscape drawing (see Appendix B - Checklist for Research Park Development Procedures - Site Development).

6.10 Signs

1. All requirements set out in the City of Guelph Sign By-law must be complied with. The following guidelines are in addition to these.
 - All sign drawings must be approved by the University of Guelph.
 - One identification sign shall be permitted at the entrance to each site.
 - One sign noting the company name may be attached to the building at the main entrance.
 - Multi-tenant directories will be allowed outside a building's main entrance with written approval of the University of Guelph.
 - Character of each sign shall reflect in some manner the architectural character of building(s) and contribute to the overall character of the Research Park, however the sign shall not dominate the streetscape character.
 - Signs must be visible at all times. To ensure this, signs shall be directly or indirectly illuminated. Approval for the method of illumination must be received from the University

- of Guelph.
 - Rotating, flashing, animated and mobile signs will not be permitted.
 - All signs must be professionally manufactured of durable, low maintenance materials. Hand painted signs will not be permitted.
2. Temporary construction signs are permitted during construction only and require approval by the University of Guelph.
 3. Any directional, traffic, or parking control signs on the lot will be reviewed by the University of Guelph with the intent that the signs will be restricted to the minimum size required, and will be consistent with other Research Park signage in format, letter and colouring.
 4. Information/identification signs shall be enhanced by plantings or other landscape features as part of an overall coordinated landscape design.

6.11 Site Amenities

1. It is recommended that open space areas be used to create passive and/or active recreational amenity areas. These may include seating and picnic facilities.
2. Suggested site amenities are:
 - open lawn areas for passive/active recreation;
 - seating/meeting areas within entry courtyards;
 - picnic/patio areas for lunch and coffee breaks.
3. Microclimatic factors such as sun and wind exposure and snow deposition shall be considered in locating and designing these areas.
4. It is strongly recommended that garbage, storage, loading and parking areas be isolated from amenity areas and that adequate screening between these areas be provided.
5. Wherever possible, care shall be taken to orient entrances to garbage enclosures away from amenity areas or views.
6. It is recommended that night lighting be considered for amenity areas to increase the use and safety of these spaces.

6.12 Lighting

1. All proposed lighting considerations shall be shown on the plan (see Appendix B - Checklist for Research Park Development Procedures - Site Development).
2. As a minimum, site lighting is required to illuminate:
 - parking lots;
 - entrances;
 - walkways;
 - signage.
3. Lighting designs are encouraged to consider the subtle illumination of site features including buildings, plants and other landscape features.
4. In all cases, glare and light trespass onto adjacent properties must be avoided. All fixtures shall be shielded, to direct light only where required. All wall-mounted fixtures shall be shielded, to direct light downward.
5. It is required that all lighting and light fixtures be in scale and character with surrounding buildings and site features. Pedestrian scale lighting is encouraged.

6. Refer to 7.6.3 for additional specifications.

6.13 Pedestrian Circulation

1. Direct pedestrian access in the form of a walkway to the main entry of each building from Research Lane and Chancellors Way is required. The location of this walkway may be adjacent to vehicular access to the site. Pedestrian, not vehicular space shall dominate the front entry area of the building.
2. The development of entry courtyard spaces adjacent to the front entry to the building is encouraged to highlight this area and ease pedestrian congestion.
3. Pedestrian entrances must be clearly distinguishable from service areas.
4. It is recommended that protective overhangs be provided at building entrances and outdoor pedestrian areas.
5. Changing materials or levels can be used to draw attention to different activity areas or to denote the junction between vehicle and pedestrian spaces. Sudden changes in grade on pedestrian routes shall be avoided, but, where necessary must be clearly denoted.
6. It is strongly recommended that separate pedestrian walkways leading to building entrances be provided in large parking areas (See Section 6.14.7).
7. Pedestrian connections between the main entrance/exits of the building and all parking areas must be clearly defined, safe and well lighted.
8. Barrier-free design, including curb cuts and ramps must be provided for all hard surface pedestrian areas including amenity areas.

6.14 Traffic and Parking

1. Barrier-free parking spaces must be clearly designated with both signage and painted symbols on the ground plane.
2. Conflicts between pedestrian and vehicular circulation shall be avoided. Where joint use of a space by vehicles and pedestrians is unavoidable, the safety of the pedestrian must be a prime design consideration.
3. Traffic islands must have a raised curb and be designed for both ease of maintenance and high visibility. The interior dimension of the island shall be a minimum of 1.2 m in width in order to allow adequate space for deciduous trees to be planted. For visibility reasons, coniferous materials over 1.0 m height shall be avoided in these locations.
4. Drop off areas at front entries are permitted, however, pedestrian, not vehicular space shall dominate the front entry area of the building.
5. The siting of loading, storage and refuse/recycling areas must not interfere with general vehicular circulation.
6. Access routes for service and emergency vehicles must be provided for and clearly delineated on the site.
7. It is required that parking lots of over 60 spaces provide, within the lot, a separate pedestrian walkway leading to the building entrance. Where common sidewalks border the property, it is recommended that this parking lot walkway connect with it.

7.0 DESIGN AND CONSTRUCTION STANDARDS

7.1 Sitework

1. Stormwater Management:

Research Park:

All buildings in the Research Park located east of the existing Research Park Centre (150 Research Lane) and east of the existing Health Canada Laboratory for Foodborne Zoonoses Laboratory (110 Stone Road West), must have a minimum door / window opening elevation of 333.75 metres geodetic. All storm sewer laterals and sanitary sewer laterals which drain any portion of these buildings situated below the elevation of 333.75 metres geodetic (such as basements and underground parking garages) must conform to all relevant plumbing codes and additionally must be equipped with suitable back flow prevention devices satisfactory to the City of Guelph Building Department (plumbing section).

Research Park North:

All buildings to be located in Research Park North must include provision for site servicing, grading / drainage and stormwater management that conforms with the *Preliminary Stormwater Management and Site Servicing Report* (May 16, 2003). The document may be updated from time to time, and is available from the University of Guelph Real Estate Division.

2. Underground site services - sewers, watermains, manholes, catch basins, valves must conform to applicable O.P.S.D. (Ontario Provincial Standard Drawing) and O.P.S.S. (Ontario Provincial Standard Specification) specifications and details. In some cases, local municipal standards will override - per confirmation with the Building Department at the site plan submission stage.
3. Utility service connections - electrical, telephone, gas, and CATV must meet requirements of the respective local service provider.
4. Excavation for footings must be to suitable undisturbed bearing soil, the bearing capacity of which is to be confirmed by a geotechnical engineer and reports of same shall be made available to the University.
5. Fill under footings must be Granular "A" compacted to 100% S.P.D.D. Fill under slabs, sidewalks and paving must be compacted to minimum 98% S.P.D.D. All structural fill will be inspected and certified by a geotechnical engineer, and reports of same shall be made available to the University.
6. Surface works including sidewalk, curb, curb and gutter must conform to O.P.S.S. and O.P.S.D. The University of Guelph will review location of surface structures, and may require barrier-free access ramps in key locations. As a general guide, concrete = 30 MPa 28 day compressive strength; 60 mm slump (100 mm for sidewalks); entrained air = 5.5 to 8.5 %. Mix designs for concrete will be submitted to the University upon request.
7. Based on preliminary geotechnical investigations, the recommended minimum pavement structure for car parking and driveways are as follows:
 - minimum 300 mm Granular "B" sub-base;
 - minimum 150 mm Granular "A" base;
 - asphaltic concrete minimum 45 mm HL4 binder course;
 - minimum 35 mm HL3 top course.

If unstable areas are found, thickness of Granular "B" will be increased, based on a field decision and recommendation of the geotechnical engineer. Materials and method of placement will conform to respective O.P.S.S.

All edges of asphalt paving must terminate against a cast-in-place concrete barrier curb 175 mm wide by 500 mm total depth, 150 mm high above asphalt.

Outside curb corners must be suitably radiused to minimize damage from snow removal and roadway cleaning equipment.

8. Slopes on berms and other earthworks must not exceed 3:1. Slopes of 4:1 or less are preferable.
9. Street Trees:
The cost of street tree plantings will be the sole responsibility of the developer. Street trees shall be planted on Stone Road, Research Park Lane, and Chancellors Way. Spacing of street trees shall be generally 1 tree per 10 metres of street frontage.

Street trees shall be a minimum size of 70 mm caliper.

10. Street Frontage:
All street frontage areas require a minimum planting density of trees that is in addition to the required street tree plantings. Stone Road frontage areas require 2 trees for every 30 m of frontage and Research Lane and Chancellors Way frontage areas require 3 trees for every 30 m of frontage. This calculation does not include street tree plantings required by University of Guelph, however, street trees will be located in street frontage areas and shall be co-ordinated with other plantings. (See Appendix C - Illustrative Site Development Criteria)

Plantings on street frontages shall include a mix of coniferous and deciduous trees with coniferous trees accounting for a minimum of $\frac{1}{3}$ of all trees.

Minimum sizes of trees planted on street frontages shall be:

- deciduous trees 60 mm caliper
- coniferous trees 200 cm height.

11. Landscape Buffer Strips:
Plantings on landscape buffer strips shall include a mix of coniferous and deciduous trees and shrubs with coniferous trees accounting for a minimum of $\frac{1}{4}$ of all trees.

Minimum sizes of trees and shrubs planted on landscape buffer strips (except as noted in 6.8.2 Research Park) shall be:

- deciduous trees 300 cm height
- coniferous trees 100 cm height
- deciduous & coniferous shrubs 40 cm height/spread.

12. Screen Planting:
Plantings required to provide adequate screening for the following areas shall have a minimum of 50% coniferous materials:
 - refuse areas;
 - utility transformers;
 - storage areas.

The planting screen at the property line adjacent to Wellington Woods Family Housing must be a minimum of 2.5 m in width. An average planting density of one tree for every 7 m (minimum) of boundary edge shall be installed within this 2.5 m width. The provision of additional landscape area is encouraged beyond 2.5 metres. This tree planting shall be supplemented by shrub materials, which, together with the trees, create a continuous screen planting. Plantings shall have a minimum of 50 % coniferous materials.

Parking and service area peripheries require a minimum planting screen of 2.0 m minimum width. Plantings shall have a minimum of 50% coniferous materials bordering Stone Road and 25% for sites bordering Research Lane and Chancellors Way. Plantings can be a combination of trees and/or shrubs provided parking areas are adequately screened. Semi-screening of parking lots must give consideration to visual access for the purpose of safety and security.

Areas along lease lines between buildings must be planted to extend a minimum of 2.0 m onto

each lot (therefore a minimum strip along a lease line between buildings is 4.0 m wide) and consist of a minimum 25% coniferous materials. Planting density shall average one tree for every 8.0 m (minimum) of boundary edge. The maximum width of this planting screen is 6.0 m on each lot using the planting density noted above, therefore, a maximum strip along a lease line between buildings is 12.0 m wide. Refer to Appendix C - Illustrative Site Development Criteria. Although shrub material may supplement this planting, it is not a requirement. It is not intended that this planting be continuous; some visual access should be maintained between buildings.

13. Plant Materials - General:

The density of tree planting required for the site will be one tree per 80 m² of total lot area. Note that shrub plantings are not included in this calculation, however, required street tree plantings within the lease lines may be included, as well as all tree plantings on the buffer strips, provided that they meet the standards outlined below. Placement of the remaining required trees shall be located predominantly within the developable portion of the site, rather than within the buffer strips.

Minimum sizes of plant materials (excluding those specified for street frontages in 7.1.10 and landscaped buffer strips in 7.1.11) shall be as follows. Plant materials shall conform to Canadian Standards for Nursery Stock latest edition.

- | | |
|---------------------------------|----------------------|
| • deciduous trees | 50 mm caliper |
| • coniferous trees | 175 cm height |
| • deciduous & coniferous shrubs | 50 cm height/spread. |

Specimen shrubs (*i.e.* those not planted in continuous mulched beds) must be a minimum of 175 cm height.

Where perennial plants are specified, it is required that they be a 2 year minimum rootstock.

The root ball of deciduous and coniferous trees 45 mm caliper and larger shall be wire basket or ball & burlap.

Deciduous and coniferous shrubs shall be potted.

14. Sodding:

All sod to conform to the Canadian Nursery Sod Growers specifications.

15. Signage:

Maximum size for construction sign is 9 m² and shall not be more than 3.5 m above the ground.

7.2 Structure

1. The principal structure of all buildings must be non-combustible (concrete, masonry, or steel). This includes all floor and wall construction but not insulation, sheathing, or minor non-load bearing components. Un-occupied roof structures may be of wood construction if fire-protected in accordance with applicable Building Code regulations.
2. The maximum permissible deflection for any part of an occupied floor is L/360.
3. Foundations must be constructed of reinforced concrete and designed and drawings sealed by a Professional Engineer registered in Ontario.
4. Slabs on grade must be a minimum 100 mm thick 25 MPa concrete, reinforced with WWM or polypropylene fibres, on 150 mm minimum compacted granular "A".

7.3 Enclosure

1. Cladding:
Wall cladding may be: clay masonry veneer; natural or synthetic stone veneer; pre-finished steel cladding of minimum sheet thickness 0.91 mm (20 ga.), with “Series 8000” or better finish; pre-finished aluminum panel cladding of minimum sheet thickness 2.5 mm, or synthetic stucco (E.I.F.S.). In addition, up to 50% of the wall area may be Architectural-finish poured or precast concrete or Architectural Concrete block. Exposed concrete block will not be acceptable unless it has an architectural finish (*i.e.* texture and/or colour).

2. Roofing:
Roofing may be any of the following systems: Inverted single ply e.p.d.m. or P.V.C. membrane; Inverted 4 ply asphalt or 3 ply modified bitumen with inorganic fabrics; or field formed or pre-formed metal roofing conforming to aforementioned metal cladding requirements. All roofing must be to C.R.C.A. specifications.

All roofs must incorporate positive slope to drains; all low points in roof must have drains; all building R.W.L.s must be internal and concealed from view. Scuppers are permitted only for penthouse to main roof drainage. Discharge from rainwater leaders or roof drains shall be directed to the storm sewer (Research Park) or to the ground surface wherever possible, and be conveyed to the on-site SWM facility (Research Park North).

All lumber components (nailers, cants, *etc.*) in a roof assembly or in other damp or exposed locations must be pressure-treated.

3. Windows and Doors:
All windows must have thermal insulating glass with Low-E coating and argon gas filled void, with warm-edge spacers and be set in thermally broken low conducting frames.

All windows must conform to CSA standard A440.2, performance levels A3, B3, and C3.

All exterior portions of window frames and main entry systems must be pre-finished or anodized aluminum, except that exit door and sidelights may be thermally broken hollow metal steel frames and insulated hollow steel doors.

4. Insulation and Sealing:
Perimeter foundation walls below slabs on grade must be insulated from slab to minimum 600 mm below grade with R.S.I. 1.1 insulation.

Walls must be insulated to minimum R.S.I. 2.1 (R-12) and be constructed without thermal bridging.

Roofs must be insulated to minimum R.S.I. 2.8 (R-16).

Continuous air and vapour barriers must be provided in accordance with the Ontario Building Code.

All building joints must be caulked with high performance sealant: only silicone, urethane or polysulphide are acceptable, with 25 % minimum movement range.

7.4 Interior Improvements

1. Interior doors must be hollow metal, aluminum, tempered glass or solid core wood, veneer face.
2. Door hardware must be heavy duty *Corbin*, or University approved equal.
3. Steel door frames must be minimum 1.22 mm thick (18 Ga.).

4. Interior window sills must be finished wood or veneer plywood, plastic laminate, solid resin plastic or polyester, marble, travertine or other impervious material; drywall or plaster sills are not permitted.

7.5 Mechanical Requirements

1. Equipment Rooms:

Mechanical and Electrical equipment rooms shall not be combined with janitor's or storage rooms.

2. Plumbing:

- Piping - piping must be identified by means of colour coding and permanent labels. Pipe shall be supported at minimum 3 m horizontal intervals, or 8 m vertical intervals as applicable. Horizontal piping under 25 mm diameter shall be supported at 2 m intervals. Supports to be steel rod.
- Plumbing Fixtures - all visible parts of fixture trim must be chrome plated. All fixtures must have valves to allow isolation from system for maintenance. Water closets must be elongated bowl vitreous china, flush valve type preferred, (required for high occupancy) or low volume anti-sweat tank type passing a 50 mm dia. ball where flush valve not provided. Seats to be black open-front rubwood for public washrooms.
- Urinals must be flush valve with 25 mm straight stop.
- Lavatory trim must be 100 mm centre set supply with super aquaseal valve mechanisms.
- Air chambers of 450 mm minimum length must be provided on all fixture supplies.
- Vacuum breaker backflow preventers must be installed at all fixtures where the possibility exists of waste water siphoning into the potable water system in accordance with all current City of Guelph Backflow Prevention Regulations.

3. Air Handling System:

- Duct fabrication must conform to ASHRAE standards. Balancing dampers must be provided at branch take-offs. Maximum air velocity to be 0.5 m/s.
- All supply air must be filtered through pre-filters with efficiency of 25% N.B.S. atmospheric dust with cartridge type after filters having an efficiency of 85% N.B.S.
- All fans, air handling units, induction units and fan coil units must be sized to operate at "medium" speed and/or capacity. All air handling systems shall make use of outside air temperature when differential can provide "free" heating and/or cooling.
- Humidifiers to be floor mounted spray pump with spray water heater and must be supplied with treated water to prevent scale and salt build-up, or steam injection humidifiers may be used.
- Exterior louvers must be extruded aluminum; pre-painted or anodized.
- Ventilation at a rate of minimum three air changes per hour must be provided.
- Pipe insulation, of fibre glass or mineral fibre (not asbestos) must be provided as follows:

| Pipe Diameter | Thickness (min) |
|--|-----------------|
| Under 50 mm | 25 mm |
| 50 mm - 150 mm | 38 mm |
| greater than 150 mm | 50 mm |
| Fresh air intakes, air conditioning supply ducts | 25 mm |

- Joints in insulation to be tightly butted and taped.
- Vibration isolators must be used for all mechanical equipment installations.
- Control system to be installed to eliminate simultaneous heating and cooling.

4. Elevators

- Door frames and door panels must be stainless steel.
- Passenger Elevators must conform to all current Barrier-Free access requirements.
- Cabs and machine rooms must be adequately ventilated.

- Emergency lighting must be provided in all cabs.

7.6 Electrical Requirements

1. Building Distribution

Secondary distribution to be at 600/347V with all mechanical equipment drives over 350W to be connected at 600V. All 208/120V to be serviced by local 600 - 208/120V transformers strategically placed in the buildings. Refer to Guelph Hydro document "Conditions of Service - Draft 2003".

2. Building Lighting

The use of incandescent lighting should be minimized; miniature fluorescent lighting is preferred.

3. Site Lighting

Recommended height for pedestrian scale walkway lighting standards is 3.65 m pole on 0.3 m base.

Recommended height for parking lot lighting standards is 6.1 m pole on 0.9 m base.

Lighting poles and fixtures shall be dark bronze in colour; poles - square steel or aluminum; fixtures - "shoe box" design consistent with current Research Park standards.

All exterior lighting fixtures to emit a white, broad spectrum light (metal halide) to standards of illumination identified. High pressure sodium and halogen light sources are not acceptable.

Recommended site lighting levels are 2 foot candles average with a 4:1 uniformity ratio (this ratio may vary depending on the site and parking lot layout).

4. Fire Alarm

Fire alarm system shall be to Ontario Building Code.

5. Communications

Fibre optics are available in the Research Park. Contact the Real Estate Division for further information.

6. Installation

Electrical Distribution equipment shall be located in dedicated areas at the load centre of the building area served and have 25 percent spare capacity.

Exposed work is acceptable in areas not used by the public or building users; otherwise all electrical work to be concealed.

All conductors and buswork to be copper.

Use RW90 copper conductors minimum # 12 AWG. Enclose conductors in EMT with a separate ground wire unless the Code requires otherwise. Control and fire alarm wiring may be # 14 AWG.

The use of BX cable is restricted to final connections to light fixtures, control items and laboratory benching electrical devices.

All wiring devices to be specification grade with thermoplastic cover plates.

Separate neutrals are required for all single phase branch circuits.

All identifiable items of equipment such as freezers, fridges, and laboratory devices to be connected to their own circuit.

Standard Definitions

| | |
|----------|---|
| ASHRAE | American Society of Heating, Refrigeration and Air Conditioning Engineers |
| AWG | American Wire Gauge |
| BX | Armoured Cable |
| C.R.C.A. | Canadian Roofing Contractors Association |
| C.S.A. | Canada Standards Association |
| e.p.d.m. | ethylene propylene diene monomer |
| EMT | Electrical Metallic Tubing |
| HL3 | Hot Laid Asphalt Mix |
| MPa | Concrete Strength Unit Measure (Pascals) |
| O.P.S.D. | Ontario Provincial Standard Drawing |
| O.P.S.S. | Ontario Provincial Standard Specification |
| P.V.C. | Polyethylene Vinyl Chloride |
| R.S.I. | Unit Measure for Insulation (metric) |
| R.W.L. | Rain Water Leaders |
| S.P.D.D. | Standard Proctor Dry Density |
| TWH | Standard Wire Type |
| ULC | Underwriters Laboratories of Canada |
| WWM | Welded Wire Mesh |

**APPENDIX A
UNIVERSITY OF GUELPH RESEARCH PARK
REQUEST FOR APPROVAL OF PROPOSED TENANT**

Company name:

Current address:

Nature of business:

Company overview:

Principal:

Total Staff:

International presence:

Details of company's affiliation with the University of Guelph:

Details of which "Tenant Criteria" are met and how:

Reasons why company wishes to locate in the Research Park:

Space requirements / Specific Park location desired:

Name of agent if applicable:

Bank reference:

The undersigned consents to the obtaining of credit and/or personal/business information as may be required at any time in connection with the credit hereby applied for or any renewal or extension thereof.

Date: _____ Applicants's Signature: _____

This section to be completed by the University of Guelph

Date: _____ Recommended by: _____
Director of Real Estate

Comments: _____

Date: _____ Approved by: _____
Vice-President, Research

Date: _____ Approved by: _____
Vice-President, Finance and Administration

Comments: _____

**APPENDIX B
CHECKLIST FOR RESEARCH PARK DEVELOPMENT PROCEDURES
SITE DEVELOPMENT**

The following is a checklist of actions required by the Real Estate Division regarding submission/application procedures for new developments in the University of Guelph Research Park. The checklist follows the procedures outlined in the *University of Guelph Research Park Site Development Control Guidelines*.

1 Pre-design Conference

- 1.1 The Real Estate Division shall initiate pre-design conference with Developer and their consultants to review the *University of Guelph Research Park Site Development Control Guidelines* and the Developer’s proposed project program.

2. Design Review

- 2.1 The Developer shall submit **preliminary submission drawings** (simultaneously provided by Developer to City’s Site Plan Coordinator) in hard copy¹ & digital¹ formats to consist of:

- all building elevations including details on all exterior materials and building mounted signage
- coloured artist’s rendering
- complete inventory of architectural materials and their colours
- typical building wall, floor and roof section detail(s) specifying all structural and thermal components
- site plan showing:
 - building(s), entrances, finished floor elevation(s)
 - setbacks, buffer strips
 - parking areas/spaces
 - amenity areas
 - hard landscape elements (steps, walks, courtyards, plazas, playgrounds, walls)
 - garbage enclosures/storage areas
 - snow storage areas
 - property/building identification signage locations
 - outdoor lighting locations and types
 - grading (existing and proposed elevations)
 - drainage structures locations, rim elevations
 - planting
- site data calculations² of:
 - parking spaces required and provided
 - landscaped area as a percentage of total lot area
 - number of trees per 80 m² of property
 - building area and lot coverage percentage.

¹ see “2.2 Drawing formats for submission”

² These calculations shall appear on the face of the Site Plan or Landscape Plan and are in addition to any Site Plan Data required by the Municipality.

2.2 Drawing formats for submission are as follows

- Hard copy drawings shall be drawn at appropriate scales and submitted at full-scale size. Reduced-scale submissions are not acceptable.
- Digital drawing submissions shall be provided in “dwg” format on compact disk. Artist’s renderings and other graphics may be provided in *Acrobat* “pdf” file format.
- Text files shall be submitted in *MS Word*, *WordPerfect*, or *Acrobat* “pdf” file formats.

- 2.3 The Real Estate Division shall review Developer’s preliminary submission and review City’s Site Plan Coordinator’s comments. Real Estate Division shall provide comments to Developer **within 10 working days** of receipt of City’s Site Plan Coordinator’s comments (Developer to provide City’s Site Plan Coordinator’s comments to University).

- 2.4 The Developer shall submit **final submission drawings** (simultaneously provided by Developer to City’s Site Plan Coordinator) in hard copy & digital formats to consist of:
- all building elevations including details on all exterior materials and building mounted signage
 - complete inventory of architectural materials and their colours
 - typical building wall, floor and roof section detail(s) specifying all structural and thermal components
 - site plan showing:
 - building(s), entrances, finished floor elevation(s)
 - setbacks, buffer strips
 - parking areas/spaces
 - amenity areas
 - hard landscape elements (steps, walks, courtyards, plazas, playgrounds, walls), construction details, notes and specifications
 - garbage enclosures/storage areas
 - snow storage areas
 - property/building identification signage locations
 - outdoor lighting locations and types (luminaires & poles) to include:
 - proposed mounting height of all light fixtures
 - proposed colour of light emitted
 - proposed light levels emitted
 - proposed precautions to prevent light trespass onto adjacent properties
 - proposed hours of operation for exterior lighting systems
 - grading (existing and proposed elevations)
 - drainage structures locations, rims, inverts, obverts
 - planting, construction details, notes and specifications
 - site data calculations ³ of:
 - parking spaces required and provided
 - landscaped area as a percentage of total lot area
 - number of trees per 80 m² of property
 - building area and lot coverage percentage.

³ These calculations shall appear on the face of the Site Plan or Landscape Plan and are in addition to any Site Plan Data required by the Municipality.

- 2.5 The Real Estate Division shall review final submission and review City’s Site Plan Coordinator’s comments. Real Estate Division shall provide comments to Developer **within 10 working days** of receipt of City’s Site Plan Coordinator’s comments (Developer to provide City’s Site Plan Coordinator’s comments to University).
- 2.6 The Real Estate Division shall grant final approval of the project upon receipt from Developer of all required construction documents meeting the requirements and final Site Plan (Section 41) documents as submitted to the City of Guelph for Building Permit application.

3. Field Reports & Change Orders

- 3.1 The Developer shall submit, during construction, copies of all consultants’ Field Review reports, Change Orders, and any other construction administration documentation which might affect the quality of the finished Work. Real Estate Division shall review and approve (or reject) changes.

4. Inspections

- 4.1 The Real Estate Division shall review and inspect the Work during construction at regular intervals.

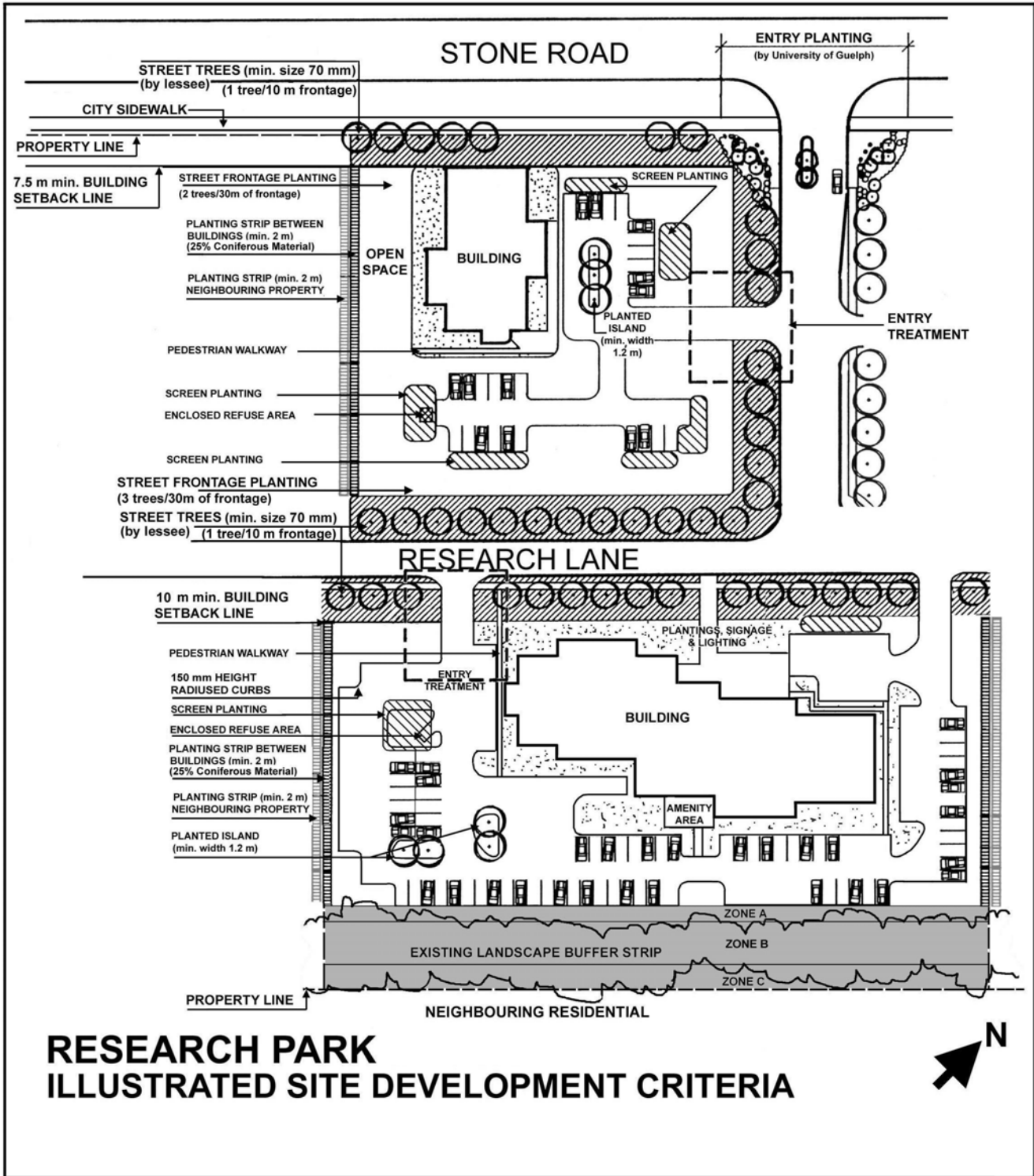
5. As-built Drawings

- 5.1 The Developer shall submit one complete set of hard copy drawings and complete electronic drawing files in formats as specified in “2.2 Drawing formats for submission” fully documenting as-built conditions within two months of final completion of the construction.

6. University Review of Submissions and Site Inspections - Fees

Fees for specialist consultants (architects, engineers, landscape architects) to review, on behalf of the Real Estate Division, submissions by Developers and work-in-progress will be borne by the Developer and shall be based on the consultants' per diem rates. The completeness of submissions and their adherence to the regulations, requirements, and these *Guidelines* will affect the effort required by the Real Estate Division in their reviews and site inspections.

**APPENDIX C
ILLUSTRATIVE SITE DEVELOPMENT CRITERIA**



**APPENDIX C
ILLUSTRATIVE SITE DEVELOPMENT CRITERIA**

