

BLACKBERRY LIMITED

Amended and Restated By-law No. A3

**A by-law relating generally to the
transaction of the business and affairs
of the Corporation**

SECTION ONE INTERPRETATION.....1

1.01 DEFINITIONS..... 1
1.02 INTERPRETATION..... 1

SECTION TWO BUSINESS OF THE CORPORATION.....2

2.01 REGISTERED OFFICE..... 2
2.02 CORPORATE SEAL 2
2.03 FINANCIAL YEAR..... 2
2.04 EXECUTION OF INSTRUMENTS..... 2
2.05 BANKING ARRANGEMENTS. 2
2.06 VOTING RIGHTS IN OTHER BODIES
CORPORATE. 2
2.07 DIVISIONS..... 3

SECTION THREE BORROWING AND SECURITY.....3

3.01 BORROWING POWER. 3
3.02 DELEGATION. 3

SECTION FOUR DIRECTORS4

4.01 NUMBER OF DIRECTORS..... 4
4.02 QUALIFICATION. 4
4.03 ELECTION AND TERM. 4
4.04 REMOVAL OF DIRECTORS..... 4
4.05 VACATION OF OFFICE..... 4
4.06 VACANCIES. 4
4.07 ACTION BY THE BOARD..... 4
4.08 MEETINGS BY TELEPHONE. 5
4.09 PLACE OF MEETING. 5
4.10 CALLING OF MEETINGS. 5
4.11 NOTICE OF MEETING. 5
4.12 ATTENDANCE OF AUDITORS..... 5
4.13 FIRST MEETING OF NEW BOARD. 5
4.14 ADJOURNED MEETING. 5
4.15 REGULAR MEETINGS. 5
4.16 CHAIR. 6
4.17 QUORUM. 6
4.18 VOTES TO GOVERN. 6
4.19 CONFLICT OF INTEREST. 6
4.20 REMUNERATION AND EXPENSES. 6

SECTION FIVE COMMITTEES.....6

5.01 COMMITTEES OF THE BOARD. 6
5.02 TRANSACTION OF BUSINESS..... 7
5.03 AUDIT COMMITTEE. 7
5.04 ADVISORY BODIES. 7
5.05 PROCEDURE. 7

SECTION SIX OFFICERS.....7

6.01 APPOINTMENT..... 7
6.02 CHIEF EXECUTIVE OFFICER..... 7

6.03 CHIEF FINANCIAL OFFICER..... 7
6.04 CHAIR OF THE BOARD. 8
6.05 PRESIDENT. 8
6.06 VICE-PRESIDENT. 8
6.07 SECRETARY..... 8
6.08 TREASURER..... 8
6.09 POWERS AND DUTIES OF OFFICERS. 8
6.10 TERM OF OFFICE. 9
6.11 TERMS OF EMPLOYMENT AND
REMUNERATION. 9
6.12 AGENTS AND ATTORNEYS..... 9
6.13 FIDELITY BONDS. 9

SECTION SEVEN PROTECTION OF DIRECTORS, OFFICERS AND OTHERS9

7.01 LIMITATION OF LIABILITY..... 9
7.02 INDEMNITY..... 9
7.03 INSURANCE. 10

SECTION EIGHT SHARES10

8.01 ALLOTMENT OF SHARES..... 10
8.02 COMMISSIONS. 10
8.03 TRANSFER AGENTS AND REGISTRARS. 10
8.04 REGISTRATION OF TRANSFER. 10
8.05 LIEN FOR INDEBTEDNESS. 10
8.06 NON-RECOGNITION OF TRUSTS. 11
8.07 SHARE CERTIFICATES..... 11
8.08 REPLACEMENT OF SHARE CERTIFICATES.... 11
8.09 JOINT SHAREHOLDERS. 11
8.10 DECEASED SHAREHOLDERS. 11

SECTION NINE DIVIDENDS AND RIGHTS.....12

9.01 DIVIDENDS.....12
9.02 DIVIDEND CHEQUES..... 12
9.03 NON-RECEIPT OF CHEQUES..... 12
9.04 RECORD DATE FOR DIVIDENDS AND
RIGHTS..... 12

SECTION TEN MEETINGS OF SHAREHOLDERS12

10.01 ANNUAL MEETINGS..... 12
10.02 SPECIAL MEETINGS. 13
10.03 PLACE OF MEETINGS. 13
10.04 NOTICE OF MEETINGS. 13
10.05 LIST OF SHAREHOLDERS ENTITLED TO
NOTICE..... 13
10.06 RECORD DATE FOR NOTICE..... 13
10.07 MEETINGS WITHOUT NOTICE. 13
10.08 CHAIR, SECRETARY AND SCRUTINEERS..... 13
10.09 PERSONS ENTITLED TO BE PRESENT. 14
10.10 QUORUM. 14

10.11	RIGHT TO VOTE.....	14
10.12	PROXYHOLDERS AND REPRESENTATIVES.....	14
10.13	TIME FOR DEPOSIT OF PROXIES.....	14
10.14	PERSONAL REPRESENTATIVE.....	15
10.15	JOINT SHAREHOLDERS.....	15
10.16	VOTES TO GOVERN.....	15
10.17	SHOW OF HANDS.....	15
10.18	BALLOTS.....	15
10.19	ADJOURNMENT.....	15

SECTION ELEVEN NOTICES16

11.01	METHOD OF GIVING NOTICES.....	16
11.02	NOTICE TO JOINT SHAREHOLDERS.....	16
11.03	COMPUTATION OF TIME.....	16
11.04	UNDELIVERED NOTICES.....	16
11.05	OMISSIONS AND ERRORS.....	16
11.06	PERSONS ENTITLED BY DEATH OR OPERATION OF LAW.....	16
11.07	WAIVER OF NOTICE.....	17

SECTION TWELVE EFFECTIVE DATE17

12.01	EFFECTIVE DATE.....	17
12.02	REPEAL.....	17

BE IT ENACTED as a by-law of the Corporation as follows:

SECTION ONE INTERPRETATION

1.01 Definitions.

In this by-law, unless the context otherwise requires:

“**Act**” means the *Business Corporations Act*, R.S.O. 1990, c. B.16 and the regulations made thereunder, as from time to time amended, and every statute or regulation that may be substituted therefor;

“**appointed**” includes “**elected**” and vice versa:

“**articles**” means the articles on which is endorsed the certificate of amalgamation of the Corporation as from time to time amended or restated;

“**board**” means the board of directors of the Corporation and “**director**” means a member of the board;

“**by-laws**” means this by-law and all other by-laws of the Corporation from time to time in force and effect;

“**Corporation**” means the corporation amalgamated under the Act by the certificate endorsed on the articles and named BlackBerry Limited, or any other name to which the corporation's name may be changed from time to time;

“**meeting of shareholders**” includes an annual meeting of shareholders and a special meeting of shareholders;

“**non-business day**” means Saturday, Sunday and any other day that is a holiday as defined in the *Legislation Act (Ontario)*, 2006, S.O. 2006, c. 21, Sched. F, as from time to time amended, and every statute or regulation that may be substituted therefor;

“**special meeting of shareholders**” includes a meeting of any class or classes of shareholders and a special meeting of all shareholders entitled to vote at an annual meeting of shareholders;

“**recorded address**” means, in the case of a shareholder, the shareholder's address as recorded in the securities register; and in the case of joint shareholders, the address appearing in the securities register in respect of such joint holding or the first address so appearing if there is more than one; and, in the case of a director, officer, auditor or member of a committee of the board, the latest address of such person as shown in the records of the Corporation or in the most recent notice filed under the *Corporations Information Act (Ontario)* or any statute that may be substituted for it, whichever, to the knowledge of the Corporation, is the more current; and

“**signing officer**” means, in relation to any instrument, any person authorized to sign on behalf of the Corporation by section 2.04 of this by-law or by a resolution passed pursuant thereto;

1.02 Interpretation.

Unless defined in section 1.01, words and expressions defined in the Act have the same meanings when used herein. Words importing the singular number include the plural and vice versa. Words importing gender include the feminine, masculine and neuter genders. Words importing a person include an individual, sole proprietorship,

partnership, unincorporated association, unincorporated syndicate, trust, unincorporated organization, body corporate and a natural person in his or her capacity as trustee, executor, administrator, or other legal representative.

SECTION TWO BUSINESS OF THE CORPORATION

2.01 Registered Office.

The registered office of the Corporation shall be at the location in Ontario initially specified in the articles of the Corporation, and thereafter, provided same is permitted under the Act, from time to time the Corporation may (i) by resolution of the directors change the location of the registered office of the Corporation within a municipality or geographic township, and (ii) by special resolution, change the municipality or geographic township in which its registered office is located to another place in Ontario.

2.02 Corporate Seal.

The Corporation may, but need not, have a corporate seal and if one is adopted it shall be in a form approved from time to time by the board.

2.03 Financial Year.

The board may, by resolution, fix the financial year end of the Corporation, and the board may from time to time, by resolution, change the financial year of the Corporation.

2.04 Execution of Instruments.

Deeds, transfers, assignments, contracts, obligations, certificates and other instruments may be signed on behalf of the Corporation by any one of the following: by any one person who holds the office of chair of the board, chief executive officer, president, chief financial officer, executive vice-president, senior vice-president, secretary, treasurer, assistant secretary or the holder of any other office created from time to time by by-law or the board. In addition, the board may from time to time direct by resolution the manner in which and the person or persons by whom any particular instrument or class of instruments may or shall be signed. Any signing officer may affix the corporate seal to any instrument requiring the same.

2.05 Banking Arrangements.

The banking business of the Corporation including, without limitation, the borrowing of money and the giving of security therefor, shall be transacted with such banks, trust companies or other bodies corporate or organizations as may from time to time be designated by or under the authority of the board. Such banking business or any part thereof shall be transacted under such agreements, instructions and delegations of powers as the board may from time to time prescribe or authorize.

2.06 Voting Rights in Other Bodies Corporate.

The signing officers of the Corporation under section 2.04 may execute and deliver proxies and arrange for the issuance of voting certificates or other evidence of the right to exercise the voting rights attaching to any securities held by the Corporation. Such instruments shall be in favour of such person or persons as may be determined by the officers executing or arranging for them. In addition, the board may from time to time direct the manner in which and the person by whom any particular voting rights or class of voting rights may or shall be exercised.

2.07 Divisions.

The board may cause the business and operations of the Corporation or any part thereof to be divided into one or more divisions upon such basis, including without limitation types of business or operations, geographical territories, product lines or goods or services, as may be considered appropriate in each case. In connection with any such division the board or, subject to any direction by the board, the chief executive officer may authorize from time to time, upon such basis as may be considered appropriate in each case:

- (a) Subdivision and Consolidation – the further division of the business and operations of any such division into sub-units and the consolidation of the business and operations of any such division and sub-units;
- (b) Name – the designation of any such division or sub-unit by, and the carrying on of the business and operations of any such division or sub-unit under, a name other than the name of the Corporation, provided that the Corporation shall set out its name in legible characters in all places required by law; and
- (c) Officers – the appointment of officers for any such division or sub-unit, the determination of their powers and duties, and the removal of any of such officers so appointed, provided that any such officers shall not, as such, be officers of the Corporation.

SECTION THREE BORROWING AND SECURITY

3.01 Borrowing Power.

Without limiting the borrowing powers of the Corporation as set forth in the Act, but subject to the articles, the board may from time to time on behalf of the Corporation, without authorization of the shareholders:

- (a) borrow money upon the credit of the Corporation;
- (b) issue, reissue, sell or pledge debt obligations of the Corporation;
- (c) give a guarantee on behalf of the Corporation to secure performance of any obligation of any person; and
- (d) mortgage, hypothecate, pledge or otherwise create a security interest in all or any property of the Corporation, owned or subsequently acquired, to secure any obligation of the Corporation.

Nothing in this section limits or restricts the borrowing of money by the Corporation on bills of exchange or promissory notes made, drawn, accepted or endorsed by or on behalf of the Corporation.

3.02 Delegation.

Subject to the Act and the articles, the board may from time to time delegate to a committee of the board, a director or an officer of the Corporation or any other person as may be designated by the board all or any of the powers conferred on the board by section 3.01 or by the Act to such extent and in such manner as the board may determine at the time of each such delegation.

SECTION FOUR DIRECTORS

4.01 Number of Directors.

Until changed in accordance with the Act, the board shall consist of not fewer than the minimum number and not more than the maximum number of directors provided in the articles, provided, however, that for so long as the Corporation is an offering corporation, the board shall consist of not fewer than three directors.

4.02 Qualification.

A person shall be disqualified from being a director of the Corporation if such person is less than 18 years of age, has been found under the *Substitute Decisions Act* (Ontario) or under the *Mental Health Act* (Ontario) to be incapable of managing property, has been found to be incapable by a court in Canada or elsewhere, is not an individual, or has the status of a bankrupt. A director need not be a shareholder. Subject to the Act, at least 25 per cent of the directors shall be resident Canadians, or if there are fewer than four directors, at least one director shall be a resident Canadian.

4.03 Election and Term.

The election of directors shall take place at each annual meeting of shareholders. Subject to the Act, each director shall cease to hold office at the close of the first annual meeting of shareholders following his or her election, but, if qualified, shall be eligible for re-election at such annual meeting. Subject to the Act and section 4.01, the number of directors to be elected at any such meeting shall be the number of directors determined from time to time by special resolution or, if the special resolution empowers the directors to determine the number, by resolution of the board. The election shall be by ordinary resolution. If directors are not elected at a meeting of shareholders, the incumbent directors shall continue in office until their successors are elected.

4.04 Removal of Directors.

Subject to the Act, the shareholders may by ordinary resolution passed at an annual or special meeting of shareholders remove any director from office and the vacancy created by such removal may be filled by the election of any qualified individual at the same meeting, failing which it may be filled by the board.

4.05 Vacation of Office.

A director ceases to hold office when he or she dies; he or she is removed from office by the shareholders; he or she ceases to be qualified for election as a director, or his or her written resignation is received by the Corporation, or, if a time is specified in such resignation, at the time so specified, whichever is later.

4.06 Vacancies.

Subject to the Act, a quorum of the board may appoint a qualified individual to fill a vacancy in the board.

4.07 Action by the Board.

The board shall manage or supervise the management of the business and affairs of the Corporation. The powers of the board may be exercised at a meeting (subject to sections 4.08 and 4.09) at which a quorum is present or by resolution in writing signed by all the directors entitled to vote on that resolution at a meeting of the board. Where there is a vacancy or vacancies in the board, the remaining directors may exercise all the powers of the board so long as a quorum remains in office.

4.08 Meetings by Telephone.

If all the directors of the Corporation consent thereto generally or if all the directors of the Corporation present at or participating in the meeting consent, a director may participate in a meeting of the board or a committee of the board by means of telephone, electronic or other communications facilities as permit all persons participating in the meeting to communicate with each other, simultaneously and instantaneously, and a director participating in such meeting by such means shall be deemed to be present at the meeting. Any such consent shall be effective whether given before or after the meeting to which it relates and may be given with respect to all meetings of the board and of committees of the board. If a majority of the directors participating in a meeting held pursuant to this section are then in Canada, the meeting shall be deemed to have been held in Canada.

4.09 Place of Meeting.

Meetings of the board shall be held at any place within or outside Ontario.

4.10 Calling of Meetings.

Meetings of the board shall be held from time to time at such place (subject to section 4.09), at such time and on such day as the board, the chair of the board, the president or any two directors may determine.

4.11 Notice of Meeting.

Notice of the time and place of each meeting of the board shall be given in the manner provided in Section Eleven to each director (a) not less than 48 hours before the time when the meeting is to be held if the notice is mailed, or (b) not less than 24 hours before the time when the meeting is to be held if the notice is given personally or is delivered or sent by any means of transmitted or recorded communication; provided that no notice of a meeting shall be necessary if all the directors in office are present or if those absent waive notice of such meeting, except where a director attends a meeting for the express purpose of objecting to the transaction of any business on the grounds that the meeting is not lawfully called. A notice of a meeting of directors need not specify the purpose of or the business to be transacted at the meeting except where the Act requires such purpose or business or the general nature thereof to be specified.

4.12 Attendance of Auditors.

The auditors of the Corporation shall be entitled to attend and be heard at meetings of the board on matters relating to their duties as auditors.

4.13 First Meeting of New Board.

Provided a quorum of directors is present, each newly elected board may without notice hold its first meeting immediately following the meeting of shareholders at which such board is elected.

4.14 Adjourned Meeting.

Notice of an adjourned meeting of the board is not required if the time and place of the adjourned meeting is announced at the original meeting.

4.15 Regular Meetings.

The board may appoint a day or days in any month or months for regular meetings at a place and hour to be named. A copy of any resolution of the board fixing the place and time of regular meetings shall be sent to each director forthwith after being passed, but no other notice shall be required for any such regular meeting except where the Act required the purpose thereof or the business to be transacted thereat to be specified.

4.16 Chair.

The chair of any meeting of the board shall be the first mentioned of such of the following officers as have been appointed and who is a director and is present at the meeting: the chair of the board or the chief executive officer. If no such officer is present, the directors present shall choose one of their number to be chair.

4.17 Quorum.

Subject to section 4.19, the quorum for the transaction of business at any meeting of the board shall be a majority of the number of directors then in office or such greater number of directors as the board may from time to time determine.

4.18 Votes to Govern.

At all meetings of the board every question shall be decided by a majority of the votes cast on the question. In case of an equality of votes the chair of the meeting shall not be entitled to a second or casting vote.

4.19 Conflict of Interest.

A director who is a party to, or who is a director or officer of or has a material interest in any person who is a party to, a material contract or transaction or proposed material contract or transaction with the Corporation shall disclose to the Corporation the nature and extent of that interest at the time and in the manner provided by the Act. Such a director shall not attend any part of a meeting of directors during which the contract or transaction is discussed and shall not vote on any resolution to approve the same except as permitted by the Act. If no quorum exists for the purpose of voting on such a resolution only because a director is not permitted to be present at the meeting, the remaining directors shall be deemed to constitute a quorum for the purposes of voting on the resolution.

4.20 Remuneration and Expenses.

The directors shall be paid such remuneration for their services as directors as the board may from time to time determine. The directors shall also be entitled to be reimbursed for travelling and other expenses properly incurred by them in attending meetings of the board or any committee thereof. Nothing herein contained shall preclude any director from serving the Corporation in any other capacity and receiving remuneration therefor.

4.21 Resolution in Lieu of Meeting.

A resolution in writing signed by all the directors entitled to vote on that resolution at a meeting of the board or a committee of the board is as valid as if it had been passed at a meeting of the board or committee of the board. A resolution in writing takes effect on the day on which the last director who is entitled and required to sign the resolution signs it. A resolution in writing may be signed in one or more counterparts and such counterparts taken together shall constitute the same resolution. A counterpart signed by a director and transmitted by facsimile or other device capable of transmitting a printed message is as valid as an originally signed counterpart.

**SECTION FIVE
COMMITTEES**

5.01 Committees of the Board.

The board may appoint from its number one or more committees of the board, however designated, and delegate to any such committee any of the powers of the board except those which pertain to items which, under the Act, a committee of the board has no authority to exercise.

5.02 Transaction of Business.

The powers of a committee of the board may be exercised by a meeting at which a quorum is present or by resolution in writing signed by all members of such committee who would have been entitled to vote on that resolution at a meeting of the committee. Meetings of such committee may be held at any place in or outside Ontario.

5.03 Audit and Risk Management Committee.

The board shall elect annually from among its number an audit committee to be composed of not fewer than three directors, each of whom shall be eligible to serve as a member of an audit committee under the Act, applicable securities legislation and applicable stock exchange rules. The audit and risk management committee shall have the powers and duties provided in the Act and in any committee charter as may be adopted by the board from time to time.

5.04 Advisory Bodies.

The board may from time to time appoint such advisory bodies as it may deem advisable.

5.05 Procedure.

Unless otherwise determined by the board, each committee of the board and each advisory board shall have power to fix its quorum at not less than a majority of its members, to elect its chair and to regulate its procedure.

**SECTION SIX
OFFICERS**

6.01 Appointment.

The board may from time to time appoint a chief executive officer, president, one or more senior or executive vice-presidents (to which title may be added words indicating function), a secretary, a treasurer and such other officers as the board may determine, including one or more assistants to any of the officers so appointed. One person may hold more than one office. The board may specify the duties of and, in accordance with this by-law and subject to the Act, delegate to such officers powers to manage the business and affairs of the Corporation. Subject to section 6.04, an officer of the Corporation may but need not be a director.

6.02 Chief Executive Officer.

The board may designate one of its officers of the Corporation as chief executive officer of the Corporation and may from time to time revoke any such designation and designate another officer of the Corporation as chief executive officer of the Corporation. The officer designated as chief executive officer shall, subject to the authority of the board, have general supervision and control of the affairs of the Corporation.

6.03 Chief Financial Officer.

The board may designate one of the officers of the Corporation as chief financial officer of the Corporation and may from time to time revoke any such designation and designate another officer of the Corporation as chief financial officer of the Corporation. The officer designated as chief financial officer shall have such duties and exercise such

powers as the board may from time to time prescribe.

6.04 Chair of the Board.

The board may from time to time also appoint a chair of the board who shall be a director. If appointed, the chair of the board shall, if present, preside at all meetings of the board and shareholders. In addition, he or she shall have such other powers and duties as the board may specify by resolution or as are incident to his or her office.

6.05 Vice Chair of the Board.

The board may from time to time also appoint a vice chair of the board who shall be a director. If appointed, he or she shall have such powers and duties as the board may specify by resolution or as are incident to his or her office.

6.06 President.

Unless otherwise designated by the board in accordance with section 6.02, the president shall be the chief executive officer of the Corporation and, subject to the authority of the board and the powers designated to the chief executive officer (if the chief executive officer is not also the president), shall have general supervision of the affairs and business of the Corporation. During the absence or disability of the president, his or her duties shall be performed and his or her powers exercised by the officer or officers of the Corporation designated from time to time by the board.

6.07 Executive or Senior Vice-President.

A(n) executive or senior vice-president shall have such powers and duties as the board or the president may prescribe.

6.08 Secretary.

Unless otherwise determined by the board, the secretary shall attend, and be the secretary of, all meetings of the board, shareholders and committees of the board. The secretary shall enter or cause to be entered in records kept for that purpose minutes of all proceedings at meetings of the board, the shareholders and committees of the board, whether or not he or she attends such meetings. He or she shall give or cause to be given, as and when instructed, all notices to directors, shareholders, auditors and members of committees of the board. He or she shall be the custodian of the stamp or mechanical device generally used for affixing the corporate seal of the Corporation and of all books, papers, records, documents and instruments belonging to the Corporation, except when some other officer or agent has been appointed for that purpose, and he shall have such other powers and duties as otherwise may be specified.

6.09 Treasurer.

The board may designate a treasurer who, subject to any resolution of the board and under the direction of the board, shall keep proper accounting records in compliance with the Act and shall be responsible for the deposit of money, the safekeeping of securities and the disbursement of the funds of the Corporation. Subject to any resolution of the board, he or she shall render to the board whenever required an account of all his or her transactions as treasurer and of the financial position of the Corporation and he or she shall have such other powers and duties as otherwise may be specified.

6.10 Powers and Duties of Officers.

The powers and duties of all officers shall be such as the terms of their engagement call for or as the board or (except for those whose powers and duties are to be specified only by the board) the chief executive officer may specify.

The board and (except as aforesaid) the chief executive officer may, from time to time and subject to the Act, vary, add to or limit the powers and duties of an officer. Any of the powers and duties of an officer to whom an assistant has been appointed may be exercised and performed by such assistant, unless the board or the chief executive officer otherwise directs.

6.11 Term of Office.

The board, in its discretion, or the president may remove any officer of the Corporation without prejudice to any officer's rights under any employment contract. Otherwise each officer appointed by the board shall hold office until his or her successor is appointed or until his or her earlier resignation.

6.12 Terms of Employment and Remuneration.

The terms of employment and the remuneration of officers elected or appointed by the board shall be settled by it from time to time.

6.13 Agents and Attorneys.

The board shall have power from time to time to appoint agents or attorneys for the Corporation within or outside of Canada with such powers (including the power to sub-delegate) of management, administration or otherwise as may be thought fit.

6.14 Fidelity Bonds.

The board may require such officers, employees and agents of the Corporation as the board deems advisable to furnish bonds for the faithful discharge of their powers and duties, in such form and with such surety as the board may from time to time determine.

**SECTION SEVEN
PROTECTION OF DIRECTORS, OFFICERS AND OTHERS**

7.01 Limitation of Liability.

Every director and officer of the Corporation in exercising his or her powers and discharging his or her duties shall act honestly and in good faith with a view to the best interests of the Corporation and exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances. Subject to the foregoing, no director or officer shall be liable for the acts, receipts, neglects or defaults of any other director, officer or employee, or for joining in any receipt or other act for conformity, or for any loss, damage or expense happening to the Corporation through the insufficiency or deficiency of title to any property acquired by order of the board for or on behalf of the Corporation, or for the insufficiency or deficiency of any security in or upon which any of the moneys of the Corporation shall be invested, or for any loss or damage arising from the bankruptcy, insolvency or tortious acts of any person with whom any of the moneys, securities or effects of the Corporation shall be deposited, or for any loss occasioned by any error of judgment or oversight on his or her part, or for any other loss, damage or misfortune which shall happen in the execution of the duties of his or her office or in relation thereto, unless the same are occasioned by his or her own willful neglect or default, provided that nothing herein shall relieve any director or officer of any liability imposed upon him or her by the Act.

7.02 Indemnity.

Subject to the Act, the Corporation shall indemnify a director or officer, a former director or officer, or a person who acts or acted at the Corporation's request as a director or officer of a body corporate of which the Corporation is or was a shareholder or creditor, and his or her heirs, executors, administrators and other legal personal representatives,

against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by him or her in respect of any civil, criminal or administrative action or proceeding to which he or she is made a party by reason of having been a director or officer of the Corporation or body corporate of which the Corporation is or was a shareholder or creditor, if (a) he or she acted honestly and in good faith with a view to the best interests of the Corporation; and (b) in the case of a criminal or administrative action or proceeding enforced by a monetary penalty, he or she had reasonable grounds for believing that his or her conduct was lawful. The Corporation may also indemnify that person in such other circumstances as the Act or law permits or requires. Nothing in this by-law shall limit the right of any individual entitled to indemnity to claim indemnity apart from the provisions of this by-law.

7.03 Insurance.

Subject to the Act, the Corporation may purchase and maintain such insurance for the benefit of its directors and officers as the board may from time to time determine.

**SECTION EIGHT
SHARES**

8.01 Allotment of Shares.

Subject to the Act and the articles, the board may from time to time allot or grant options to purchase the whole or any part of the authorized and unissued shares of the Corporation in such manner and to such persons or class of persons as the board shall by resolution determine, provided that no share shall be issued until it is fully paid as provided by the Act.

8.02 Commissions.

The board may from time to time authorize the Corporation to pay a reasonable commission to any person in consideration of such person purchasing or agreeing to purchase shares of the Corporation, whether from the Corporation or from any other person, or procuring or agreeing to procure purchasers for any such shares.

8.03 Transfer Agents and Registrars.

The board may from time to time by resolution appoint a registrar to keep the register of security holders and a transfer agent to keep the register of transfers and may also appoint one or more branch registrars to keep branch registers of security holders and one or more branch transfer agents to keep branch registers of transfers, but one person may be appointed both registrar and transfer agent. The board may at any time terminate any such appointment.

8.04 Registration of Transfer.

Subject to the Act, no transfer of shares shall be registered in a register of transfers or branch register of transfers except upon presentation of the certificate representing the share endorsement made on or delivered with it which complies with the Act, duly executed by the appropriate person as provided by the Act, together with such reasonable assurance or evidence of signature, identification and authority to transfer as the board may from time to time prescribe, and on payment of all applicable taxes and any reasonable fees prescribed by the board, and compliance with such restrictions on transfer as are authorized by the articles, if any, and on satisfaction of any lien referred to in section 8.05.

8.05 Lien for Indebtedness.

The Corporation shall have a lien on the shares registered in the name of a shareholder who is indebted to the Corporation except where such class or series of shares of the Corporation is listed on a stock exchange, and the lien may be enforced, subject to the articles, by the sale of the shares affected by it or by any other action, suit, remedy or proceeding authorized or permitted by law or by equity and, pending enforcement, the Corporation may refuse to register a transfer of the whole or any part of those shares.

8.06 Non-Recognition of Trusts.

Subject to the Act, the Corporation may treat the registered holder of any share as the person exclusively entitled to vote, to receive notices, to receive any dividend or other payment in respect of the share, and otherwise to exercise all the rights and powers of an owner of the share.

8.07 Share Certificates.

Every holder of one or more fully paid shares of the Corporation shall be entitled, at his or her option, to a share certificate, or to a non-transferable written certificate of acknowledgement of his or her right to obtain a share certificate, stating the number and class or series of shares held by him or her as shown on the securities register, and stating that such shares are fully paid. Share certificates shall be in such form as the board shall from time to time approve and shall be signed in accordance with section 2.04 and need not be under the corporate seal; provided that, unless the board otherwise orders, certificates representing shares in respect of which a transfer agent, registrar, or both has been appointed shall not be valid unless countersigned by or on behalf of such transfer agent or registrar. The signature of one of the signing officers or, in the case of share certificates which are not valid unless countersigned by or on behalf of a transfer agent or registrar, the signatures of both signing officers may be mechanically reproduced upon share certificates and every such signature shall for all purposes be deemed to be the signature of the officer whose signature it reproduces and shall be binding upon the Corporation. A share certificate executed as aforesaid shall be valid notwithstanding that one or both of the officers whose signature appears thereon no longer holds office at the date of issue or delivery of the certificate.

8.08 Replacement of Share Certificates.

The board or any officer or agent designated by the board may in its or his or her discretion direct the issue of a new share certificate or other such certificate in lieu of and on cancellation of a share certificate that has been mutilated or in substitution for a certificate claimed to have been lost, apparently destroyed or wrongfully taken, on payment of such reasonable fee and on such terms as to indemnity, reimbursement of expenses and evidence of loss and of title as the board may from time to time prescribe, whether generally or in any particular case.

8.09 Joint Shareholders.

If two or more persons are registered as joint holders of any share, the Corporation shall not be bound to issue more than one certificate in respect of that share, and delivery of the certificate to one of those persons shall be sufficient delivery to all of them. Any one of those persons may give effectual receipts for the certificate issued in respect of it or for any dividend, bonus, return of capital or other money payable or warrant issuable in respect of that share.

8.10 Deceased Shareholders.

In the event of the death of a holder, or of one of the joint holders, of any share, the Corporation shall not be required to make any entry in the register of shareholders in respect of the death or to make any dividend or other payments in respect of the share except on production of all such documents as may be required by law and on compliance with the reasonable requirements of the Corporation and its transfer agents.

SECTION NINE DIVIDENDS AND RIGHTS

9.01 Dividends.

Subject to the Act and the articles, the board may from time to time declare dividends payable to the shareholders according to their respective rights and interests in the Corporation. Dividends may be paid in money or property or by the issue of fully paid shares of the Corporation or options or rights to acquire fully paid shares of the Corporation. Any dividend unclaimed after a period of six years from the date on which it has been declared to be payable shall be forfeited and shall revert to the Corporation.

9.02 Dividend Cheques.

A dividend payable in money shall be paid by cheque drawn on the Corporation's bankers or one of them to the order of each registered holder of shares of the class or series in respect of which it has been declared and mailed by prepaid ordinary mail to such registered holder at his or her address appearing on the securities register, unless such holder otherwise directs. In the case of joint holders, the cheque shall, unless such joint holders otherwise jointly direct, be made payable to the order of all the joint holders and mailed to them at the address appearing on the register of shareholders in respect of such joint holding, or to the first address so appearing if there are more than one. The mailing of such cheque, unless it is not paid on due presentation, shall satisfy and discharge the liability for the dividend to the extent of the sum represented by it plus the amount of any tax which the Corporation is required to and does withhold.

9.03 Non-Receipt of Cheques.

In the event of non-receipt of any dividend cheque by the person to whom it is sent, the Corporation shall issue to such person a replacement cheque for a like amount on such terms as to indemnity, reimbursement of expenses and evidence of non-receipt and of title as the board may from time to time prescribe, whether generally or in any particular case.

9.04 Record Date for Dividends and Rights.

The board may fix in advance a date, preceding by not more than 50 days the date for the payment of any dividend or the date for the issue of any warrant or other evidence of right to subscribe for securities of the Corporation, as a record date for the determination of the persons entitled to receive payment of the dividend or to exercise the right to subscribe for such securities, and notice of any such record date shall be given not less than seven days before the record date in the manner provided by the Act. In every such case, only persons who are shareholders of record at the close of business on the record date so fixed shall be entitled to receive payment of such dividend or to exercise the right to subscribe for such securities and to receive the warrant or other evidence in respect of such right, notwithstanding the transfer or issue of any shares after the record date is fixed.

SECTION TEN MEETINGS OF SHAREHOLDERS

10.01 Annual Meetings.

The annual meeting of shareholders shall be held at such time in each year and, subject to section 10.03, at such place as the board, the chair of the board may from time to time determine, for the purpose of receiving the reports and statements required by the Act to be laid before the annual meeting, electing directors, appointing auditors and fixing or authorizing the board to fix the remuneration of the auditors, and for the transaction of such other business as may properly be brought before the meeting.

10.02 Special Meetings.

The board or the chair of the board shall have power to call a special meeting of shareholders at any time.

10.03 Place of Meetings.

Meetings of shareholders shall be held at such place within or outside Ontario as the directors determine or, in the absence of such determination, at the place where the registered office of the Corporation is located.

10.04 Notice of Meetings.

Notice of the time and place of each meeting of shareholders shall be sent in the manner provided in Section Eleven not less than 21 nor more than 50 days before the date of the meeting to each director, to the auditor, and to each shareholder who at the close of business on the record date for notice is entered in the securities register as the holder of one or more shares carrying the right to vote at the meeting. Notice of a special meeting of shareholders shall state the nature of the business in sufficient detail to permit the shareholder to form a reasoned judgement on it and shall give the text of any ordinary resolution, special resolution, or by-law to be submitted to the special meeting.

10.05 List of Shareholders Entitled to Notice.

For every meeting of shareholders, the Corporation shall prepare a list of shareholders entitled to receive notice of the meeting. The list shall be arranged in alphabetical order and show the number of shares held by each shareholder entitled to vote at the meeting. If a record date for the meeting is fixed pursuant to section 10.06, the shareholders listed shall be those registered at the close of business on that record date. If no record date is fixed, the shareholders listed shall be those registered at the close of business on the day immediately preceding the day on which notice of the meeting is given, or where no such notice is given, on the day on which the meeting is held. The list shall be available for examination by any shareholder during usual business hours at the registered office of the Corporation or at the place where the central securities register is maintained and at the meeting for which the list was prepared.

10.06 Record Date for Notice.

The board may fix in advance a date, preceding the date of any meeting of shareholders by not more than 60 days and not less than 30 days, as a record date for the determination of the shareholders entitled to notice of the meeting, and notice of any such record date shall be given not less than seven days before such record date, by newspaper advertisement in the manner provided in the Act and by written notice to each stock exchange in Canada on which the shares of the Corporation are listed for trading. If no such record date is so fixed, the record date for the determination of the shareholders entitled to receive notice of the meeting shall be at the close of business on the day immediately preceding the day on which the notice is given or, if no notice is given, shall be the day on which the meeting is held.

10.07 Meetings Without Notice.

A meeting of shareholders may be held without notice at any time and at any place permitted by the Act or the articles (a) if all the shareholders entitled to vote thereat are present in person or duly represented by proxy or if those not present or represented by proxy waive notice of or otherwise consent to such meeting being held, and (b) if the auditors and the directors are present or waive notice, or otherwise consent to the meeting being held; so long as the shareholders, auditors or directors present are not attending for the express purpose of objecting to the transaction of any business on the grounds that the meeting is not lawfully called. At such a meeting, any business may be transacted which the Corporation may transact at a meeting of shareholders.

10.08 Chair, Secretary and Scrutineers.

The chair of the board, if such an officer has been elected or appointed and is present, otherwise another director of the Corporation who is a shareholder of the Corporation, shall be chair of any meeting of shareholders. If no such person is present within 15 minutes from the time fixed for holding the meeting, the persons present and entitled to vote shall choose one of their number to be chair. If the secretary of the Corporation is absent, the chair shall appoint some person, who need not be a shareholder, to act as secretary of the meeting. If desired, one or more scrutineers, who need not be shareholders, may be appointed by a resolution or by the chair with the consent of the meeting.

10.09 Persons Entitled to be Present.

The only persons entitled to be present at a meeting of shareholders shall be those entitled to vote thereat, the directors and the auditors of the Corporation and others who, although not entitled to vote, are entitled or required under the Act or the articles or by-laws to be present at the meeting. Any other person may be admitted only on the invitation of the chair of the meeting or with the consent of the meeting.

10.10 Quorum.

A quorum for the transaction of business at any meeting of shareholders shall be two persons present in person, each being a shareholder entitled to vote thereat or a duly appointed proxyholder or representative for a shareholder so entitled, holding or representing in the aggregate not less than 25% of the outstanding shares of the Corporation, or of the class or classes respectively (if there is more than one class of shares outstanding for the time being), entitled to vote at the meeting. If a quorum is present at the opening of any meeting of shareholders, the shareholders present or represented may proceed with the business of the meeting even if a quorum is not present throughout the meeting. If a quorum is not present at the time appointed for the meeting or within a reasonable time after that which the shareholders may determine, the shareholders present or represented may adjourn the meeting to a fixed time and place but may not transact any other business.

10.11 Right to Vote.

Every person named in the list referred to in section 10.05 shall be entitled to vote the shares shown on the list opposite his or her name at the meeting to which the list relates.

10.12 Proxyholders and Representatives.

Every shareholder entitled to vote at a meeting of shareholders may appoint a proxyholder, or one or more alternate proxyholders, as his or her nominee to attend and act at the meeting in the manner and to the extent authorized and with the authority conferred by the proxy. A proxy shall be in writing executed by the shareholder or his or her attorney and shall conform to the requirements of the Act. Alternatively, every shareholder which is a body corporate or association may authorize by resolution of its directors or governing body an individual to represent it at a meeting of shareholders and that individual may exercise on the shareholder's behalf all the powers it could exercise if it were an individual shareholder. The authority of such an individual shall be established by depositing with the Corporation a certified copy of the resolution, or in such other manner as may be satisfactory to the secretary of the Corporation or the chair of the meeting. Any such proxyholder or representative need not be a shareholder.

10.13 Time for Deposit of Proxies.

The board may fix a time, not exceeding 48 hours, excluding non-business days, preceeding any meeting or adjourned meeting of shareholders before which time proxies to be used at the meeting must be deposited with the Corporation or its agent, and any time so fixed shall be specified in the notice calling the meeting. A proxy shall be acted on only if, prior to the time so fixed and specified in the notice calling the meeting, it has been deposited with

the Corporation or its agent or, if no such time is specified in the notice, it has been received by the secretary of the Corporation or by the chair of the meeting or any adjournment thereof before the time of voting.

10.14 Personal Representative.

If the shareholder of record is deceased, his or her personal representative, upon filing with the secretary of the meeting sufficient proof of his or her appointment, shall be entitled to exercise the same voting rights at any meeting of shareholders as the shareholder of record would have been entitled to exercise if he or she were living, and for the purposes of the meeting shall be considered a shareholder. If there is more than one personal representative, the provisions of section 10.15 shall apply.

10.15 Joint Shareholders.

If two or more persons hold shares jointly, any one of them present in person or duly represented by proxy at a meeting of shareholders may, in the absence of the other or others, vote the shares; but if more than one of them are present in person or represented by proxy and vote, they shall vote together as one on the shares jointly held by them.

10.16 Votes to Govern.

At any meeting of shareholders every question shall, unless otherwise required by the articles or by-laws or by law, be determined by a majority of the votes cast on the question. In case of an equality of votes either upon a show of hands or upon a poll, the chair of the meeting shall not be entitled to a second or casting vote.

10.17 Show of Hands.

Subject to the Act, any question at a meeting of shareholders shall be decided by a show of hands, unless a ballot thereon is required or demanded as hereinafter provided, and upon a show of hands every person who is present and entitled to vote shall have one vote. Whenever a vote by show of hands shall have been taken upon a question, unless a ballot thereon is so required or demanded, a declaration by the chair of the meeting that the vote upon the question has been carried or carried by a particular majority or not carried and an entry to that effect in the minutes of the meeting shall be prima facie evidence of the fact without proof of the number or proportion of the votes recorded in favour of or against any resolution or other proceeding in respect of the said question, and the result of the vote so taken shall be the decision of the shareholders upon the said question.

10.18 Ballots.

On any question proposed for consideration at a meeting of shareholders, and whether or not a show of hands has been taken thereon, the chair may require a ballot or any person who is present and entitled to vote on such question at the meeting may demand a ballot. A ballot so required or demanded shall be taken in such manner as the chair shall direct. A requirement or demand for a ballot may be withdrawn at any time prior to the taking of the ballot. If a ballot is taken each person present shall be entitled, in respect of the shares which such person is entitled to vote at the meeting upon the question, to that number of votes provided by the Act or the articles, and the result of the ballot so taken shall be the decision of the shareholders upon the said question.

10.19 Adjournment.

The chair at a meeting of shareholders may, with the consent of the meeting and subject to such conditions as the meeting may decide, adjourn the meeting from time to time and from place to place. If a meeting of shareholders is adjourned for less than 30 days, it will not be necessary to give notice of the adjourned meeting, other than by announcement at the earliest meeting that is adjourned. Subject to the Act, if a meeting of shareholders is adjourned by one or more adjournments for an aggregate of 30 days or more, notice of the adjourned meeting shall be given as for an original meeting.

SECTION ELEVEN NOTICES

11.01 Method of Giving Notices.

Any notice (which term includes any communication or document) to be given (which term includes sent, transmitted, delivered or served) pursuant to the Act, the regulations thereunder, the articles, the by-laws or otherwise to a shareholder, director, officer, auditor or member of a committee of the board shall be sufficiently given if delivered personally to the person to whom it is to be given, if mailed to such person at the person's recorded address by prepaid mail, or if transmitted by telephone, facsimile or other electronic means in accordance with the *Electronic Commerce Act* (Ontario). A notice so delivered shall be deemed to have been given when it is delivered personally or to the recorded address as aforesaid; a notice so mailed shall be deemed to have been given when deposited in a post office or public letter box; and a notice so sent by any means of transmitted or recorded communication shall be deemed to have been given when dispatched or delivered by dispatch. A notice so delivered shall be deemed to have been received when it is delivered personally, a notice so mailed shall be deemed to have been received on the fifth day after it is deposited in a post office or public letter box, and a notice so transmitted shall be deemed to have been received on the day it is transmitted. The secretary may change or cause to be changed the recorded address of any shareholder, director, officer, auditor or member of a committee of the board in accordance with any information believed by the secretary to be reliable.

11.02 Notice to Joint Shareholders.

If two or more persons are registered as joint holders of any share, notice to one of such persons shall be sufficient notice to all of them. Any notice shall be addressed to all of such joint holders and the address to be used for the purposes of section 11.01 shall be the address appearing on the securities register in respect of such joint holding, or the first address so appearing if there are more than one.

11.03 Computation of Time.

In computing the date when notice must be given under any provision requiring a specified number of days' notice of any meeting or other event, the date of giving the notice shall be excluded and the date of the meeting or other event shall be included.

11.04 Undelivered Notices.

If any notice given to a shareholder pursuant to section 11.01 is returned on three consecutive occasions because he or she cannot be found, the Corporation shall not be required to give any further notices to that shareholder until he or she informs the Corporation in writing of his or her new address.

11.05 Omissions and Errors.

The accidental omission to give any notice to any shareholder, director, officer, auditor or member of a committee of the board, or the non-receipt of any notice by any such person, or any error in any notice not affecting the substance of the notice, shall not invalidate any action taken at any meeting held pursuant to such notice or otherwise founded on it.

11.06 Persons Entitled by Death or Operation of Law.

Every person who, by operation of law, transfer, death of a shareholder or any other means whatsoever, shall become entitled to any share, shall be bound by every notice in respect of the share which has been duly given to the

shareholder from whom he or she derives his or her title to the share before his or her name and address were entered on the securities register (whether the notice was given before or after the happening of the event upon which he or she became so entitled) and before he or she furnished the Corporation with the proof of authority or evidence of his or her entitlement prescribed by the Act.

11.07 Waiver of Notice.

Any shareholder, proxyholder or other person entitled to attend a meeting of shareholders, director, officer, auditor or member of a committee of the board may at any time waive any notice, or waive or abridge the time for any notice required to be given to him or her under the Act, the regulations, the articles, the by-laws or otherwise, and that waiver or abridgement, whether given before or after the meeting or other event of which notice is required to be given, shall cure any default in the giving or in the time of the notice, as the case may be. Any such waiver or abridgement shall be in writing, except a waiver of notice of a meeting of shareholders or of the board or a committee of the board, which may be given in any manner.

**SECTION TWELVE
EFFECTIVE DATE**

12.01 Effective Date.

This by-law shall come into force when made by the board in accordance with the Act.

12.02 Amendment and Restatement.

This amended and restated By-law Number A3 amends, restates and supercedes the previous by-law of the Corporation, being By-law Number A3 confirmed by the shareholders on July 20, 1999. The amendment and restatement shall not affect the previous operation of any by-law so amended and restated or repealed, or affect the validity of any act done or right, privilege, obligation or liability acquired or incurred under, or the validity of any contract or agreement made pursuant to, or the validity of any articles or predecessor charter documents of the Corporation obtained pursuant to, any such by-law before its amendment and restatement or repeal. All officers and persons acting under any by-law so amended and restated or repealed shall continue to act as if appointed under the provisions of this by-law and all resolutions of the board, the shareholders or committees of the board with continuing effect passed under any amended and restated or repealed by-law shall continue to be good and valid except to the extent inconsistent with this by-law and until amended or repealed.

MADE by the board the 21st day of May, 2013.

/s/ Thorsten Heins
President

/s/ Steve Zipperstein
Secretary

CONFIRMED by the shareholders in accordance with the Act the 9th day of July, 2013.

/s/ Steve Zipperstein
Secretary