

THE BOARD OF EXAMINERS
FOR
NOVA SCOTIA LAND SURVEYORS
HANDBOOK

Approved by Council of the
Association of Nova Scotia Land Surveyors
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(Note: p 16-18 in Statute Law of NS Section -- List of Statutes was updated in July 2001)

The aim of this handbook is to identify the requirements that must be satisfied in order to gain a license as a Nova Scotia Land Surveyor

Herein are set out:

- a. A brief introduction to land surveying and the role of the Association of Nova Scotia Land Surveyors;
- b. The examination and qualifying structure laid down by provincial statute, by the Council of the Association of Nova Scotia Land Surveyors, by the Nova Scotia Board of Examiners for Land Surveyors and the Atlantic Provinces Board of Examiners for Land Surveyors;
- c. The schedule of the Atlantic Provinces Board of Examiners for Land Surveyors examinations;
- d. The schedule and syllabus of professional examinations;
- e. Matters relating to the articling process and the admission of students as members of the Association.

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SURVEYING AND SURVEYORS

1. Surveying is a broad field which offers a diversity of work.
2. Land Surveyors in this province are qualified to practice by the Association of Nova Scotia Land Surveyors and are members of the association.
3. Surveyors are involved in the production of topographic maps and hydrographic charts, the preparation of building sites and subsequent construction, the determination of differences in elevation over long distances, the layout of streets and roads, the determination of property boundaries, the gathering of land-related information and the management of geographic information systems.
4. Surveyors are employed at every level of government. Many work for large organizations such as petroleum or utility corporations. Others operate their own businesses which provide corporate or individual clients with a variety of services.
5. A land surveyor is one with expertise related to land boundaries and the extent of real property. He or she is an expert who is consulted on matters involving boundaries, and may be retained by property owners, lawyers, engineers, planners, architects or developers to advise and assist with projects that depend upon a knowledge of precise property limits.

QUALIFICATIONS

Association

1. The Association of Nova Scotia Land Surveyors, incorporated in 1951, is a self-governing body under the authority of the *Land Surveyors Act*, Chapter 249, Revised Statutes of Nova Scotia 1989.
2. The Association is responsible for establishing and maintaining the standards of knowledge, skill and practice of its members.
3. Under the broad direction of Council of the Association, the Board of Examiners is responsible for:
 - a. The examination of individuals wishing to qualify as Nova Scotia Land Surveyors;
 - b. The issuance of certificates of qualification; and,
 - c. The admission of members to the Association.
4. In order to keep pace with change, the Board periodically review the requirements for licensing of candidates.
5. Currently, the most direct route to become a licensed Nova Scotia Land Surveyor is to obtain a bachelor's degree in survey engineering or in survey science from a Canadian university, serve a period of formal articling with a land surveyor practising in Nova Scotia, and fulfil the examination requirements.

Applicants

6. An applicant for admission as a member of the Association must:
 - a.
 - i. Hold a bachelor's degree from a survey program approved by the Board, or
 - ii. Pass such examinations equivalent to a bachelor's degree as approved by the Board;
 - b. Pass such other examinations as prescribed by the Board, including examinations in professional practice, law and boundary retracement; and
 - c. Article with a Nova Scotia Land Surveyor for the period of time determined by the Board

7. Some examinations are set and marked by the Atlantic Provinces Board of Examiners for Land Surveyors. See para. 14 below for more detail.
8. The key issue with respect to examinations is whether the candidate is competent to practise land surveying, not whether he or she is competent compared with other candidates. Consequently, marks are not scaled.

Training Programs

9. Two approaches are open to those who wish to become Nova Scotia Land Surveyors:
 - a. Graduation from a university-level program in surveying (eg. Department of Geodesy and Geomatics, University of New Brunswick, Fredericton, NB); or,
 - b. Graduation from a technology-level program in surveying (eg. Surveying Department, College of Geographic Sciences, Lawrencetown, Annapolis County, NS).
10. The program at UNB offers a number of choices of courses which lead to a degree within the Geodesy and Geomatics program. Some of these courses are required by the Atlantic Provinces Board of Examiners for Land Surveyors for licensing, while others are not. The candidate for a degree and licensing as a land surveyor should obviously ensure that his or her choices meet both requirements. One interested only in licensing could choose only those courses required by the Board without regard to whether they were in sufficient number or combination to lead to a degree.
11. One graduating from a technology program would receive credit for some examinations required by the Atlantic Provinces Board of Examiners for Land Surveyors. In addition, the technology graduate would receive some credit for advanced standing at UNB (or at another university) in their surveying programs. The technology graduate would probably find at least a year of study at UNB would be needed (without regard to requirements for a degree) to acquire credits in courses not normally available at other than university level, but needed to fulfil the requirements of the Atlantic Board.

Atlantic Provinces Board of Examiners for Land Surveyors

12. The Nova Scotia Board of Examiners has delegated to the Atlantic Provinces Board of Examiners for Land Surveyors the assessment of candidates in respect to the requirements in sub-para 6(a) above. The qualifying examinations as prescribed by the Atlantic Board must be passed, or exemption given for them, before the professional examinations can be written. The professional examinations are under the direct control of the Nova Scotia Board.

13. The schedule of examinations required by the Atlantic Board, effective February 10, 1997:

PART I

1. Basic Mathematics
2. Statistics
3. Physics
4. Computer Programming
5. Introduction to Earth Sciences
6. Plane Surveying
7. Basic Photogrammetry
8. Written and Graphic Communications

PART II

9. Advanced Mathematics
10. Least Squares estimating & Data Analysis
11. Data Base Management Systems
12. Geodetic Positioning
13. Applied Photogrammetry & Remote Sensing
14. Advanced Surveying & Survey Astronomy
15. Survey Law
16. Cadastral Studies
17. Land Economy
18. Land Use Planning, Environmental Management & Municipal Engineering
19. Geographic Information Systems
20. Business Law, Administration & Economics

PART III

(Candidate must take two of the following)

21. Geodetic Networks and Gravity Field
22. Engineering and Mining Surveys
23. Oceanography and Hydrographic Surveying
24. Cartography

PART IV

25. Survey Systems
26. The Surveying Profession

14. A copy of the schedule and syllabus of examinations, and information about registration and fees, may be obtained from:
 The Registrar
 Atlantic Provinces Board of Examiners for Land Surveyors
 358 King Street, Suite 304
 Fredericton NB E3B 1E3
15. Examinations listed above are those which have been delegated to the Atlantic Board pursuant to Regulation 118.
16. The Atlantic Board issues a Certificate to candidates who have passed or received exemption from the syllabus of examinations. Those wishing to sit the professional examinations set by the Nova Scotia Board must possess this certificate.
17. Candidates who have university degrees or university credits should submit their transcripts to the Atlantic Board for evaluation. Credits may be given for university courses successfully completed which are judged equivalent to corresponding Atlantic Board subjects.
18. Articling with a Nova Scotia Land Surveyor may be entered into following the completion of Part I of the Atlantic Board syllabus.
19. At least twelve months of the twenty-four month articling period must be served after the student member has received a Certificate from the Atlantic Board.

Surveyors Commissioned in Other Jurisdictions

20. An applicant possessing a valid and subsisting license from a professional survey association in Canada should communicate directly with the NS Board of Examiners. The Board will then advise the length of articling time required, having regard to the education and experience of the applicant.

Canada Lands Surveyors

21. The Government of Canada commissions surveyors for surveys of Canada lands. These are lands which belong to Canada, or of which the Government of Canada has the right to dispose, that are situated in the Yukon or Northwest Territories, in National Parks and in Indian reserves. Canada lands include lands under water belonging to Her Majesty in right of Canada (the offshore).
22. **For complete information on obtaining a Canada Lands Surveyor commission contact:**
 Association of Canada Lands Surveyors
 1390 Prince of Wales Drive
 Ottawa ON K2C 3N6 **Tel: (613) 723-9200**

23. Candidates for membership in the Association of Nova Scotia Land Surveyors should keep the requirements for CLS licensing in mind when choosing courses of study for examination or credit.

Formal Training

24. In Canada there are several degree-programs in surveying which offer academic training at the professional level:
 - University of Calgary -- Geomatics Engineering
 - University of Laval -- Geomatic Sciences
 - University of New Brunswick, Fredericton -- Geodesy and Geomatics Engineering
25. There are several technical and community colleges which provide academic training in surveying at the technician and the technologist level. The NS College of Geographic Sciences at Lawrencetown, Annapolis County is the only one in the Maritimes. It offers a two-year diploma Geomatics Engineering Technology program.

Continuing Education

26. A commission as a land surveyor is not the end of professional education and training. Changes in technology, law and professional practice require continuous study and attention.
27. The Association of NS Land Surveyors, the Canadian Institute of Geomatics, the Association of Canada Lands Surveyors, the NS College of Geographic Sciences, and the University of New Brunswick, individually or jointly, offer periodic seminars of interest to professional surveyors. Participation in these is a part of one's professional responsibility.

Reciprocity

28. The Canadian Council of Land Surveyors has developed a policy on reciprocity which establishes a uniform standard within Canada for registration as a land surveyor.
29. Land surveyors who are registered in one province may seek registration in another province by passing a limited number of specific examinations and by completing a period of articles in that province.

Technicians and Technologists

30. Those interested in careers in surveying and mapping should bear in mind that there are many interesting, challenging, rewarding and well-paid positions in this broad field which do not require the individual to be licensed as a land surveyor.

31. Technicians and technologists are employed in all surveying and mapping offices; they work with and under the broad direction and supervision of professional surveyors, mappers or engineers.

PROFESSIONAL EXAMINATIONS

General

1. The schedule of professional examinations is:

Principles of Common Law
Statute Law of Nova Scotia
Land Surveyors Act, Regulations, By-laws and Code of Ethics
Retracement Survey
2. The syllabus of each examination and the requirements pertaining to the retracement survey are in the pages which follows.
3. Candidates must have a Certificate from the Atlantic Board before sitting the professional examinations.

Frequency and Location

4. Examinations are held in January and June of each year.
5. They are normally written in the Association board room.

Notice

6. Candidates must give the Secretary of the Board at least two months' notice of which examinations they intend to write.

Fees

7. The fee is \$25 per examination, which must be paid to the Secretary prior to the exam being written.
8. There is no fee associated with the retracement survey; the candidate, however, must bear the attendant costs.

Review

9. A request for the review of an examination is \$25, which must accompany the application and which is refunded if a higher mark is assigned on review.

PRINCIPLES OF COMMON LAW

Purpose

1. This examination enables the Board to verify that the candidate possesses an adequate knowledge of those principles of common law which relate to property boundaries and has the capacity to correctly identify those principles and relate them to actual situations.

Method

2. The examination will be a written one of three hours duration.
3. No reference material will be permitted other than that which may be issued with the examination itself.
4. The examination will address three areas:
 - a. Development of the Canadian legal system within the common law.
 - b. Fundamental principles which relate to property boundaries.
 - c. Candidate's capacity to recognize these principles in particular circumstances.
5. The candidate should read each question carefully and then respond as directly and as succinctly as possible. Lengthy expeditious in hope of encountering an answer by chance, or of drawing such a wide net as to suggest to the examiner that the answer has been thoroughly encompassed (though not positively identified), will be unproductive.
6. Marks will be deducted for consistently poor grammatical constructions or orthography.

Pass Mark

7. Candidates must achieve a percentage of **70** or better to be successful.

Credit

8. An examination in the principles of common law written in another jurisdiction and passed with a percentage of **70** or better will normally be credited in lieu of sitting this one.

Syllabus

9. The candidate is expected to have an understanding of the broad principles of statute law and of common law relevant to property boundaries, retracement surveys and the law of real

property within the Canadian legal system. A detailed knowledge of the statute law of any particular province is not expected of candidates for this examination.

10. The Canadian legal system: nature and sources of law; precedent and stare decisis; basis of judicial authority.

Real property law: evolution; theories of ownership, other rights; conveyancing; legal principles affecting ownership.

Land registration systems: registry system; fundamentals of land titles system.

Boundaries: original surveys; surveys, plans and evidence; priorities of evidence; property rights and boundaries; lost boundaries; re-definition of boundaries; tidal boundary delimitation; maritime boundary delimitation; specific problems of inland water boundaries; sources and nature of uncertainties; resolution of uncertainties through courts, conventional lines, estoppel, apportionment of accretion, fences and statutes; interpretation of deed descriptions.

Evidence: admissibility; exclusionary rules; parol evidence; best evidence; expert opinion; presumptions; burden of proof.

Liability: negligence; contract; insurance.

References

11. Primary references are:

Canadian Institute of Survey and Mapping, Survey Law in Canada, (Toronto, Carswell Co, 1989) except for interpretation of deed descriptions, ISBN 0-459-33191-4. The above syllabus has been prepared in terms of its Table of Contents.

D.W. Lambden and I. de Rijcke, Boundaries and Surveys, Toronto, Carswell Co, 1985), ISBN 0-459-37690-0 PB. Part II of the main portion and Part III of Appendix I relate to the interpretation of descriptions.

Canadian Law Dictionary, 2nd ed., J.A. Yogis, (Toronto, Barron's Educational Series, 1983), ISBN 0-8120-4308-1.

12. Other references of particular relevance to the Atlantic Provinces are:

LaForest G.V., Water Law in Canada -- The Atlantic Provinces, (Government of Canada, 1973)

Association of Nova Scotia Land Surveyors, Case Reports Concerning Legal Principles of Boundaries, 159 Portland Street, Dartmouth, NS B2Y 1H9

Association of New Brunswick Land Surveyors, Case Reports Concerning Legal Principles of Boundaries, 535 Beaverbrook Court, Fredericton, NB E3B 1X6.

Previous Exams

13. Copies of the previous two examinations are available from the Secretary on request.

STATUTE LAW IN NOVA SCOTIA

Purpose

1. This examination enables the Board to verify that the candidate possesses and adequate knowledge of those statutes of Nova Scotia which relate to the practice of surveying.

Method

2. The examination will be a written one of three hours duration.
3. All questions will be based upon the statute law of Nova Scotia. All questions should be answered. There will be no choices.
4. The examination will be of the open-book variety; that is, the candidate is permitted to bring and use any reference material he or she wishes.
5. The candidate's answer to each question must be supported by quoting the applicable Act with section, subsection, etc. as the case may require.
6. A sample question with the proper answer thereto is:

Q. What are the survey requirements relating to blueberry commons?

A. Such area or areas shall first be surveyed and properly marked by posts and stones by the Department of Natural Resources.

Blueberry Assoc. Act Sec. 2

7. No value will be given an answer, however correct otherwise, which is lacking the correct supporting authority.

Pass Mark

8. Candidates must achieve a percentage of **70** or better to be successful in this examination.

Credit

9. This examination is unique in its application to Nova Scotia. Credit for an equivalent examination in another jurisdiction will not be given.

Open-Book Exam

10. This kind of examination more closely approaches actual behaviour in practice than any other: one looks up the law, particularly as it relates to detail -- one does not attempt to memorize it.
11. The candidate should ensure that he or she understands the principles upon which the open-book examination is based: more questions can be asked in greater detail and a broader coverage of the topic can be obtained than with the closed-book approach.
12. The much larger number of questions ensures that the candidate who is unprepared cannot succeed by reading or studying the necessary material at the last minute. The open-book examination tends to reward the candidate who has read widely for understanding rather than memorizing.

Syllabus

13. Provincial statutes that have sections relevant to surveying (compiled as of January 1, 2001).

Notes: See Section A of the Manual of Good Practice for the Association of Nova Scotia Land Surveyors to view a detailed listing of the applicable sections of the following Statutes on which a candidate may be examined.

Section A of the Manual of Good Practice and a file containing the applicable sections of the Statutes is available in PDF format from the Association office.

Statutes

Age of Majority Act
Agricultural Marshland Conservation Act
Agriculture And Marketing Act
Angling Act
Assessment Act
Barristers And Solicitors Act
Beaches Act
Beaches and Foreshores ACT
Blueberry Association Act
Business Electronic Filing Act
Canada - NS Offshore Petroleum Resources Accord
Cemeteries Protection Act
Cemetery And Funeral Services Act
Common Fields Act
Companies Act
Condominium Act
Conservation Easements Act

Statutes (Continued)

Conveyancing Act
Corporations Miscellaneous Provisions Act
Crown Lands Act
Ditches and Water Courses Act
Electronic Commerce Act
Engineering Profession Act
Environment Act
Escheats Act
Evidence Act
Expropriation Act
Fences and Detention of Stray Livestock Act
Fences And Impounding of Animals Act
Fisheries and Coastal Resources Act
Flight 111 Special Places Memorial Act
Forests Act
Forest Enhancement Act
Freedom of Information And Protection of Privacy Act
Gas Distribution Act
Gas Storage Exploration Act
Halifax - Dartmouth Bridge Commission Act
Health Act
Heritage Property Act
Indian Lands Act
Internal Trade Agreement Implementation Act
Interpretation Act
Intestate Succession Act
Land Actions Venue Act
Land Holdings Disclosure Act
Land Surveyors Act
Land Titles Clarification Act
Limitation of Actions Act
Marketable Titles Act
Married Women's Deeds Act
Married Women's Property Act
Matrimonial Property Act
Mechanics Lien Act
Mineral Resources Act
Mining Companies Easements Act
Municipal Government Act
Notaries and Commissioners Act
Nova Scotia Power Privatization Act
Occupational Health and Safety Act

Statutes (Continued)

Partition Act
Petroleum Resources Act
Pipeline Act
Private Ways Act
Probate Act
Provincial Parks Act
Public Highways Act
Public Trustee Act
Public Utilities Act
Quieting Titles Act
Railways Act
Real Property Act
Real Property Transfer Validation Act
Registry Act
Regulations Act
Retail Business Uniform Closing Day Act
Sale of Land under Execution
Small Claims Court Act
Special Places Protection Act
Statute of Frauds
Survivorship Act
Wharves and Public Landings Act
Wills Act

LAND SURVEYORS ACT, REGULATIONS, BY-LAWS AND CODE OF ETHICS

Purpose

1. This examination enables the Board to verify that the candidate has an adequate knowledge of the Land Surveyors Act, Regulations, By-laws and Code of Ethics.

Method

2. The examination will be a written one of three hours duration.
3. The examination will be of the open-book variety, that is the candidate is permitted to bring and use any reference material he or she wishes.
4. The candidate's answer to each question on the Act, Regulations or By-laws must be supported by quoting the applicable source with section, sub-section, etc. as the case may require.
5. A sample question from this portion of the examination, with the proper answer thereto is:

Q. How are errors of closure to be distributed?

A. If the error of closure is to be distributed the compass rule or a superior adjustment shall be used

Reg. 18

6. No value will be given an answer to this kind of question, however correct otherwise, which is lacking the correct supporting authority.
7. Ethical questions rarely can be answered with such precision. Hence, while no supporting authority will be required of a response, such authorities may be quoted or referred to as the candidate deems appropriate in any particular instance.

Pass Mark

8. Candidates must receive a percentage of **70** or better to be successful in this examination.

Credit

9. This examination is for the most part unique in its application to Nova Scotia. Credit for a similar examination written in another jurisdiction will not be given.

Open-book Exam

10. The comments made in paras. 10 to 12 inclusive in the reference material for the examination in statute law of Nova Scotia apply equally to the portion of this examination as far as the Act, Regulations and By-laws are concerned.
11. An open-book examination on ethics allows the candidate to make more comprehensive responses than otherwise might be the case, and to exhibit considerable familiarity with existing literature on the topic.

Syllabus

12. Land Surveyors Act, Regulations, By-laws and Code of Ethics.

Reference

13. The following articles refer directly to the surveying community. Other material is relevant also:

Allred, G.K., "Professional Ethics -- The Missing Link to a Complete Education", The Canadian Surveyor, Vol. 39, No. 4, 1985, pp. 385-390.

Allred, G.K., "The Surveying Profession", Chapter 11 of Canadian Institute of Surveying and Mapping, Survey Law in Canada, (Toronto, Carswell Co., 1989), ISBN 0-459-33191-4.

Weir, C.H., "Professional Practice", The Canadian Surveyor, Vol. 40, No. 1, 1986, pp. 3-12.

RETRACEMENT SURVEY

Assignment and Presentation

Setting

1. The survey is assigned by the Board during the last third of the candidate's period of articulated training.
2. Selection of the survey will be at the request of the Board to a surveyor other than the one to whom the candidate is articling with.
3. The lands assigned may be either publicly or privately owned but shall be of a charitable or service nature, eg. church, post office, armoury, park.

Execution

4. Prior to commencing the retracement survey, the candidate will provide to the Board a detailed estimate of;
 - a) the number of hours to complete the survey,
 - b) the total cost to complete the survey as if the candidate is carrying out the survey for profit and
 - c) the deliverables that will be provided at the conclusion of the survey.
5. Permanent marks shall not be put in place during the course of the retracement survey.
6. The owners and abutters of the property shall be notified by the candidate that a student's retracement survey project, not a legal survey, is proposed.
7. The report of survey should be an exposition of methods employed, evidence found and the sources of same, searches made and with what success, and decisions taken with the reasons for same.
8. The survey, the resulting plan(s) and the report must be the candidate's work, not a reflection of the views and ideas of others who have been invited to express an opinion or to suggest approaches.
9. The candidate is responsible for any costs incurred during the survey for materials, labour, transportation, searching fees, etc.
10. The survey will be conducted in accordance with the provisions of the Act and existing regulations thereunder.

Presentation

11. The retracement survey will be reviewed and rated by three special examiners appointed for the purpose by the Board.
12. The candidate will furnish the Board with four complete sets of the plan(s), description(s) and report of the completed retracement survey.
13. The candidate will provide to the board, as part of the report, a representative invoice for the survey services associated with the retracement survey. The invoice will show in detail the number of hours for each segment of the survey, the rates charged for the various classifications of service providers, the rates charged for equipment used and for all consumables. The report will include justification of the rates and incorporate all direct and overhead costs.
14. The Board, in appointing special examiners, will specify the senior member who will be responsible to the Board for organizing and coordinating the work to be done.
15. The special examiners should be prepared to meet as a group within one month of being designated to review a particular retracement survey. At this meeting, the candidate will be present and prepared to defend the survey.
16. Any expenses for travelling or accommodation incurred by the special examiners shall be paid by the Board. The candidate shall bear his own expenses.
17. During the presentation of the survey, the candidate should also be prepared to discuss any topics related to the period of articling, such as filing practices, time records, handling complaints, etc.

EXAMINATION INSTRUCTIONS

1. No persons other than candidates and the presiding officer are permitted in the examination room.
2. No candidate will be allowed to enter the examination room and commence writing after the commencement of the examination without the consent of the presiding officer.
3. No candidate shall be permitted to commence writing after another candidate has left the examination room unless the presiding officer is satisfied that there has been no communication between the two candidates.
4. The presiding officer may assign seats.
5. No books, printed paper, manuscript, blank paper or blotting papers are to be brought into the examination by any candidate except by the direction of the examiner.
6. Candidates shall not communicate with each other during the writing of the any examination.
7. During closed-book examinations, all books and bags shall be left away from desks and tables and shall be placed near the exit from the room.
8. Candidates who have unauthorized materials, even if their use be not proved, or who assist or obtain assistance from other candidates, may not be permitted to write the remaining part of the examination or subsequent examinations.
9. Candidates will use only the individual identifying number assigned to them by the presiding officer. This number will apply to all examinations written at one sitting.
10. Candidates should ensure their number is placed prominently in the upper right corner of any tables or pages enclosed in the examination booklets.
11. Candidates shall identify themselves only by the number assigned to them.
12. Extension of time, owing to late arrival, may be granted a candidate at the discretion of the presiding officer.
13. Candidates who accept an examination paper will be considered to have attempted the examination even though they may write nothing.
14. If any question in an examination appears to be lacking in an essential, the candidate may repair the deficiency by means of an assumption, providing the assumption is stated at the beginning of the solution or answer.

15. Warning will be given fifteen minutes before the time fixed for closing the examination. When the papers are later called for, candidates must immediately cease writing.

EXAMINATION TECHNIQUES

1. The following guidelines or suggestions are not intended to be a substitute for knowledge of a particular topic or subject.
2. They are designed to help candidates deal with formal written examinations in such a way as to demonstrate to best advantage their understanding of the matters at issue. These techniques relate to method and system, not to content.
 - a. Make an assessment of the time available:
 - (i) allocate time for read-in, for response to questions and for review;
 - (ii) divide the response period according to the value of the individual questions;
 - (iii) mark opposite each question how much time you can afford to respond to it.
 - b. Check periodically that you are following the time schedule as a whole.
 - c. Follow examination instructions, eg. if "right-hand pages are for answers and the left for rough work," then conform. Ignoring instructions will probably not alone cause failure on an examination, but it may put the examiner in an unsympathetic frame of mind.
 - d. Respond first to the easy questions or those you know best. Leave the others till later.
 - e. Answer the question that has been asked, not the question you wish had been asked.
 - f. Organize your answer using rough notes before responding to a question. This is what left-hand pages are normally for.
 - g. Make sure you understand ahead of time the key words and phrases often used in examinations, eg.:

"Compare x and y ..."
"Contrast x and y ... "
"Compare and contrast x and y ..."

Compare: to bring out similarities.
Contrast: to bring out differences.
 - h. Don't run overtime by answering at length a question that appeals to you. Having answered fully, more information will not give you more marks.
 - i. On the other hand, don't leave too much to the examiner's imagination. He or she cannot be expected to interpret cryptic phrases or obscure or indirect references. Examiners are normally on your side, but you've got to give them something to work with.

- j. Keep to your time schedule; don't get bogged down on a difficult or complex point. See a. (iii) above.
 - k. If time begins to run out, say so and sketch your answer to a particular question in outline; then come back if time permits and expand it.
 - l. Make sure all "add-on" sheets bear your identifier and that all are placed in the examination booklet.
 - m. Check the total of your examination booklets; be sure you hand in all your work.
 - n. Leave time for review. See a. (i) above.
 - o. Spend some time before the examination addressing questions on previous examinations and study the form of the exams.
 - p. Unless you know this pays off for you, don't stay up late cramming and reviewing the night before. Most people do better (assuming regular study and thought ahead of time) by watching a movie or indulging in some other harmless diversion.
3. Most importantly, take a positive attitude toward examinations. Look at them as an opportunity to demonstrate mastery of a subject.

ARTICLED TRAINING

General

1. A candidate must be a student member of the Association in order to become an articulated student.
2. It is the candidate's responsibility to find a practising land surveyor to whom he or she can be articulated. Opportunities for articling exist among surveyors in private practice, in corporations, and in government employ at federal, provincial or municipal levels.
3. The fundamentals of articling are set out in Regulations 124 to 130 inclusive.

Articled Student Members

4. A Student Membership Application for registration as a student member is made to the Secretary. It must be accompanied by a copy of the Agreement of Articled Training, unless this form has been forwarded beforehand, and evidence of both the educational standing and good character of the applicant.
5. An official transcript of marks is normally acceptable as verification of education standing. An official transcript is one that has been sent directly to the Secretary by the educational institution at the request and at the expense of the applicant.
6. Two letters of reference are normally acceptable as evidence of good character. The persons writing the letters should state their connection with the applicant and say something of their own background or occupation, eg. family friend, member of clergy, professional associate.
7. A Student Membership Application and the Agreement of Articled Training for registration as a student member should be submitted promptly upon the Agreement of Articled Training having been signed. The Board will only count as articulated training time a period not exceeding 30 days before the receiving date of the Agreement of Articled Training.

License in Other Association

8. An applicant with a valid license from another professional association in Canada must serve a period of articulated training from 6 months to one year, as prescribed by the Board. The actual period will be determined having regard to the applicant's education and experience.

Length of Articled Training

9. Applicants other than those with a valid license from another association in Canada must serve a twenty-four month period of articulated training.

10. Details of the designated areas of training, and their corresponding portions of time, are in Regulation 126.
11. At least twelve months of the twenty-four month period of articulated training must be served after the student member has received a Certificate from the Atlantic Board.
12. A student member may article with successive members, but only one member at a time.

Commencement of Articled Training

13. Prior to the commencement of articulated training, the following matters should be discussed by the prospective student member and the surveyor:
 - a. The articling and training process;
 - b. The additional responsibilities, beyond those normally existing between employer and employee, which apply to those joined by the Agreement of Articled Training;
 - c. The surveyor's capacity to provide the range of experience needed; and
 - d. The candidate's capacity to meet expectations.

Surveyor's Responsibilities

14. The student must receive adequate training and experience in the fields of surveying in which the surveyor is competent.
15. The surveyor must personally supervise the day-to-day activities of the student.
16. The surveyor must assist the student to obtain well-rounded training and experience. This may require the transfer of articulated training to another surveyor at an appropriate time.
17. The surveyor has a duty to instruct and inform the student member which goes beyond providing the minimum information needed to get a particular job done.
18. The surveyor should be aware that articling presents an opportunity to improve his or her understanding of matters in which the student member may be particularly proficient by reason of academic training or previous experience.

Student Member's Responsibility

19. The student member must develop the capacity to accept increasing responsibility as articulated training progresses.
20. The individual's academic training has to be related to the practicalities of surveying, technical expertise must be related to problems at hand, and logical, informed decisions must be made both in the office and in the field.

21. As articulated training progresses, the student member will find that his or her responsibilities will require thought, action and attention beyond a nine-to-five routine.
22. A daily journal of work done must be kept to assist in the preparation of the report of articulated training and the Affidavit of Articled Training form.
23. Each page of the report of articulated training must bear the imprint of the surveyors stamp and/or initials of the member to whom he or she is articulated with.

Guidelines for Work Experience

24. In addition to instruction in the principles and practice of surveying, the surveyor should help the student member develop a progressive appreciation and understanding of the elements involved in operating a business. The principal ones are noted below.
25. Record keeping: filing; retrieval; database management and the like.
26. Public relations: communication with clients, members of the public, other members of the profession, members of other professions and employees.
27. Finances: job estimating; cash flow; federal and provincial taxes; overhead; depreciation; work in progress; fixed assets; profit margin; elements of the professional fee.
28. Management: scheduling office and field activities; group life and medical insurance; workers' compensation; equipment and project insurance; leasing; liability insurance; quality control; staff relations.

Monitor

29. Once a candidate has been accepted as an articulated student member, the Board assigns a monitor and the Secretary informs the monitor, the student, and the member to whom he or she is articulated. The Board or its delegate will advise orally and in writing, the articulated training requirements of both the student member and the member, as well as the role of the monitor.
30. The monitor, who is an experienced land surveyor, meets with the student member periodically and reviews the progress of the student member's articulated training.
31. After each meeting, the monitor makes a written report to the Board.

Admission to Membership

32. Once all parts of the articulated training have been completed, the student member may make application for membership in the Association.

33. If not done beforehand, a copy of the applicant's birth certificate must be furnished the Board as proof that the age of majority has been attained.
34. The fee payable shall be the membership fee for the current year, plus any assessment or levy payable under the by-laws, pro-rated for the balance of the Association's fiscal year.
35. The oath prescribed for a Nova Scotia Land Surveyors shall be administered by a member of the Board of Examiners or by a member of the Association specifically designated by the Board for that purpose.

GUIDELINES FOR ARTICLED TRAINING

Student members shall serve a twenty-four month period of articles that will comprise the following designated areas of training with the corresponding percentage of time and hours required:

a) **Field Practice**

	Detail	Percentage Minimum	Hours Minimum
(i)	Boundary retracement Urban (10% minimum) Woodlot (10% minimum)	30%	1080
(ii)	Boundary establishment	8%	288
(iii)	Location Certificates	2%	72
(iv)	Control and other surveys	8%	288
	Subtotal	48%	1728

(b) **Office Practice**

	Detail	Percentage Minimum	Hours Minimum
(i)	Research	5%	180
(ii)	Calculations and specifications	5%	180
(iii)	Analysis of evidence	8%	288
(iv)	Descriptions	2%	72
(v)	Professional development	7%	252
	Subtotal	27%	972

(c) **Discretionary Practice**

(i)	As decided by the student and member	25%	900
	Total	100%	3600

FIELD PRACTICE

Boundary Retracement

- a) **Urban boundary retracement** consists of field work to search for, identify and locate by survey means, evidence that will support the location of or help establish a boundary in residential or commercial surroundings. The evidence will include original monuments, limits of occupation and features referred to in documents or by land owners.
- b) **Rural boundary retracement** consists of field work to search for, identify and locate by survey means, evidence that will support the location of or help establish a boundary in agricultural, woodland or rural surroundings. The evidence will include original monuments, cut or blazed lines, limits of occupation and features referred to in documents or by land owners.

Urban and rural boundary retracement includes the field work to re-establish the boundaries and placement of survey markers at the corners of the land being surveyed.

Boundary Establishment consists of field work to establish new boundaries. This includes cutting and blazing the lines, making check measurements and placing proper monuments. This activity will primarily take place when new lots are being created by subdivision or consolidation.

Surveyors Location Certificates consist of field work to locate all necessary buildings, improvements, encroachments, boundary evidence, easements and rights-of-way necessary to prepare a Surveyors Location Certificate in accordance with part VIII of the regulations.

Control and other surveys consist of:

- a) **Control surveys** to establish control networks for any type of survey (legal, topographic, photogrammetric etc.) that result in a closed traverse that is subsequently adjusted by accepted survey means. This includes both horizontal and vertical traverses.
- b) **Topographic surveys** to locate or tie in surface features of an area. The features are located relative to one another by relating them to the same control network or grid.
- c) **Hydrographic surveys** to locate or tie in underwater features of an area. Usually marine features, water depths and bottom profiles. The features are located relative to one another by relating them to the same control network or grid.
- d) **Aerial surveys** using a combination of ground surveys and aerial imagery to identify, measure and relate features to a control network or grid for mapping purposes.
- e) **Construction surveys** to establish reference lines for construction or confirm that features have been constructed in the proper location.

OFFICE PRACTICE

Research consists of:

- a) Obtaining copies of documents relating to the survey. These documents include but are not limited to:
 - Original crown grants and grant plans
 - Deeds and plans for the subject parcel and surrounding parcels
 - Road boundary information
 - Rights-of-way and service corridor information from municipalities and service companies

- b) Searching appropriate sites or sources, such as:
 - Land owners in the vicinity of the survey
 - Registry of Deeds
 - LIS records
 - Crown Lands Records
 - Municipal offices
 - Surveyors records
 - Assessment office
 - Utility company records
 - Department of Transportation

Calculations and Specifications consist of:

- a) Calculations by computer or manual means to:
 - determine the relative mathematical relation of evidence to a grid;
 - position or locate boundary lines based on the evidence considered;
 - determine the relationship of features to boundaries;
 - determine areas of land, volumes and cuts and fills.

- b) Meeting the required specifications for cadastral survey accuracy as set out in the regulations. This includes the analysis of horizontal and vertical field measurements for errors or blunders. The adjustment of the field measurements by survey means and calculation of field setouts to within acceptable tolerances.

Analysis of Evidence consists of reviewing all of the evidence accumulated relative to determining extent of rights or title. Based on survey law, case law and the hierarchy of evidence, prioritize the evidence and make decisions to determine the location of boundaries. Keep in mind that it is the surveyor's duty to restore boundary lines in their original location, regardless of whether or not that location agrees with its theoretical or recorded description, the goal is to end up standing where the earlier surveyors stood.

Descriptions consists of reviewing, analyzing and understanding existing descriptions used to analyze evidence and preparation of the written description for parcels being created or resurveyed. New descriptions will be prepared in accordance with the regulations.

Professional Development consists of:

- a) Business relations: determining clients' needs; acting as an agent for clients with other professionals and government agencies. Preparing written correspondence and technical reports for clients.
- b) Public relations: communication with clients, members of the public, other members of the profession, members of other professions and employees.
- c) Finances: job estimating; cash flow; payroll; federal and provincial taxes; overhead; depreciation; work in progress; fixed assets; profit margin; elements of the professional fee.
- d) Management: scheduling office and field activities; group life and medical insurance; workers' compensation; equipment and project insurance; leasing; liability insurance; quality control; staff relations.
- e) Record keeping: filing; retrieval; database management and the like.

DISCRETIONARY PRACTICE

Discretionary practice may consist of any survey related activity that will be of benefit to the candidate. This may include any of the previous categories or:

- Condominium Surveys
- GPS Surveys
- GIS activities
- Preliminary, tentative or final subdivision design
- Instrument calibration

STUDENT MEMBERSHIP APPLICATION

PERSONAL

Name _____

Address _____

Tel: _____ Fax: _____

Date of Birth: _____ Place of Birth: _____

EDUCATION

School/University Attended	Location	Grade/Course Compl.	Year
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Diploma or Degree Attained _____

ARTICLED TRAINING

Name and Address of Person Articled To:

Affidavit of Articled Training

Affidavit by the Surveyor

1. I, _____, Nova Scotia Land Surveyor, of _____, do solemnly swear that _____ has served regularly and faithfully with from the ____ day of _____, that he/she has been engaged with me in field and office practice related to the surveys listed on the attached sheet(s) which bear(s) the imprint of my professional stamp and/or my initials, and that the said _____ has always conducted himself / herself with all due diligence and honesty on the said surveys.

Subscribed and sworn to

before me at _____

this ____ day of _____

Commissioner of Oaths

Nova Scotia Land Surveyor

Affidavit by the Articled Student

2. I, _____, of _____, make oath and say:
- That I am of the age of majority.
 - That I have served regularly and faithfully with _____, Nova Scotia Land Surveyor, of _____ as an articled student from the ____ day of _____ to the ____ day of _____.
 - That I have been engaged with the said _____ in field and office practice related to the surveys herein set out.

Subscribed and sworn to

before me at _____

this ____ day of _____

Commissioner of Oaths

Articled Student

Confirmation by the Board

3. These affidavits have been accepted by the Board this ____ day of _____

Chairman

AGREEMENT OF ARTICLED TRAINING

This Agreement of Articled Training made the _____ day of _____ 20____
between _____ of _____ hereinafter
called the Student, of the First Part, and _____ of
_____, a Nova Scotia Land Surveyor duly authorized to
practice as such, hereinafter called the Surveyor, of the Second Part.

Witnesseth that the Student by this deed places and binds himself Student to the
Surveyor to serve him from the date hereof for the term as determined by the Board of
Examiners for Nova Scotia Land Surveyors.

And the Student hereby covenants with the Surveyor as follows:

1. That the Student will faithfully serve the Surveyor as his Student in the profession
of a Nova Scotia Land Surveyor from the date hereof for the aforesaid term.
2. That the Student will obey and execute the lawful and reasonable commands of the
Surveyor and not depart or absent himself from the service or employ of the
Surveyor at any time during the term without his consent, but at all times during the
term will truly, honestly and diligently serve the Surveyor.
3. That the Student will not divulge the secrets nor spoil, destroy or make away with
any property of the Surveyor or his firm or any partner therein or any of his clients
or employers; and if the Student shall act contrary to the last mentioned covenant
or if the Surveyor or his firm shall suffer any loss or damage by the misconduct or
neglect of the Student, the Student will make good the amount or value thereof.

IN CONSIDERATION of the premises and the sum of one dollar by the Student paid to
the Surveyor, the receipt whereof is hereby acknowledged, the Surveyor hereby
covenants with the Student, that he, the Surveyor will accept and take the Student for
the aforesaid term as his student and also that he will use all reasonable means to
instruct the Student, or cause him to be instructed, in the practise or profession of a
Nova Scotia Land Surveyor, and that when the Student has duly and faithfully served
the term will use his best endeavours to have the Student qualified as a Nova Scotia
Land Surveyor.

IN WITNESS WHEREOF the Parties above mentioned have hereunto set their hands and affixed their seals. **IN THE PRESENCE OF** _____

(
(
(

Surveyor

Witness

(
(
(

Student

PROVINCE OF NOVA SCOTIA
COUNTY OF _____

On this _____ day of _____, A.D. 20 _____, before me, the subscriber personally came and appeared. _____ a subscribing witness to the foregoing Covenant, who, having been by me duly sworn, made oath and said that _____ and _____ signed, sealed and delivered the same in _____ presence.

Commissioner of Oaths