

Guidelines for Writing Work Term Reports

Department of Civil and Environmental Engineering
University of Waterloo

by
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October 2002
Revised July 2004
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200 University Avenue West
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December 20, 2010

Dr. Maria Anna Polak
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Dear Dr. Polak:

This report, entitled "Guidelines for Writing Work Term Reports," was prepared for the Department of Civil and Environmental Engineering. The purpose of this report is to provide guidelines for Civil and Environmental Engineering students to follow in their work reports.

One requirement for professional accreditation is evidence of the ability to communicate effectively both orally and in writing. Accordingly, students are expected to use the work reports to improve their report-writing and English skills. The guidelines specify the manner in which the reports are to be presented.

Under the direction of Professor Eric Soulis, I am employed by the department as a marker of the style and grammar quality of work term reports.

This report was written entirely by me and has not received any previous academic credit at this or any other academic institution. I would like to thank Professor Soulis and Clayton Morgan for assisting me during the preparation of the report. I received no other help with the report.

Sincerely,

(signature)

Barb Trotter
ID# 00 000 000

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Summary

The ability to communicate effectively both orally and in writing is an essential component of professional accreditation for civil engineers. Therefore, the Department of Civil and Environmental Engineering at the University of Waterloo provides an opportunity for undergraduate students to improve their skills in this area and uses work reports as one vehicle for practice and evaluation.

This document provides guidelines for the use of students who are submitting work reports. It illustrates and explains the required format, style, and structure of a work report and lists applicable deadlines. The guidelines contain examples of the components of a report, an outline of the required contents, and an explanation of common grammar errors and ways to correct them. The guidelines are presented in the form of a report.

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1. Introduction

The background, purpose, and scope of these guidelines are outlined in this section to provide students with a model to follow in their reports.

1.1 Background

An important component of all accredited Canadian engineering undergraduate programs is that "Provision must be made to develop each student's capability to communicate adequately, both orally and in writing" (Canadian Engineering Accreditation Board, 1993). The development of communications skills has always been emphasized in the Department of Civil and Environmental Engineering at the University of Waterloo. That is, effectively preparing résumés, writing technical reports, and developing oral presentation skills are stressed throughout the undergraduate program.

The Department of Civil and Environmental Engineering requires that each student submit four work term reports that receive a grade of satisfactory or better. The first work term report is submitted to the Department of Co-operative Education and Career Services (CECS), Information Desk, Tatham Centre, and all subsequent reports are submitted to the class professor. The second, third, and fourth reports are evaluated using a two-stage process. Specialists in technical writing assess the quality of the English and the overall editorial quality, and faculty members assess the technical content. All work term reports should contain significant analytical content, and at least two of the reports must contain substantial technical content that reflects systematic exposure to engineering analysis and/or design during a work term.

These guidelines are provided to help students prepare professional-quality reports. Correct formatting, style, and grammar are addressed, and examples are provided. These guidelines themselves are an example of a properly organized and formatted report. However, because they are instructional, they differ significantly from a report. Some sections of the guidelines are written in second person, which is not appropriate in an actual work report. They do not contain the technical analytical content required in a work report and do not have a Conclusions section or a Recommendations section.

The requirements are detailed to help you become familiar with the many elements that constitute a well-designed report. The amount of detail required may seem tedious at first, but it is all part of gaining the confidence of both the thorough and the casual reader. The guidelines are also intended to be a useful reference throughout your career. Most major employers have their own style requirements, but in their absence, these guidelines will suffice.

This document is living and evolving. We would appreciate any feedback, particularly suggestions for the addition of items that would be of general interest. Please direct your comments to the Associate Chair, Undergraduate Studies, Dr. Polak, or to the Coordinator of the Work Report Program, Dr. Soulis.

1.2 Purpose of a Work Term Report

Work reports are an important part of a work term experience. They encourage employers to give students well-defined reportable assignments and tasks and encourage students to apply

classroom material to real world applications. The specific objective is to teach the elements of technical communication, in particular, the structure and design of a technical report. The objective includes not only help with the mechanics of report writing, such as citations and headings, but also assistance for creative writers to simplify their writing styles and direct help for marginal writers to enhance their writing skills.

1.3 Scope of a Work Term Report

1.3.1 General

A work term report should include more than just a simple description of information that has been observed or calculated. To satisfy the analytical requirement, the report must contain a critical assessment of the quality and reliability of the information; it should also assess the significance of the information with respect to the engineering problem discussed in the report.

To satisfy the engineering design requirement, a report should identify a problem, describe alternative solutions to the problem, analyze and evaluate the alternative solutions, and recommend one of the solutions. Engineering design is much more than technical analysis: it includes economic analysis and, in some cases, an analysis of the environmental and social impacts.

Reports written for employers are often inadequate for direct submission as work term reports. For example, geotechnical site investigation reports are normally written to provide clients with foundation recommendations, and such reports may not contain design calculations or an analysis

and an evaluation of alternatives. Environmental engineering site reports usually record observations of contaminant levels, and they do not contain an analysis or an interpretation of the observations. Reports of this type may form the basis for suitable work term reports provided that they include acceptable engineering analysis and/or design.

Another example of a report that is normally unacceptable as a work term report is a user's manual for a computer program. However, a work term report is acceptable if it describes the overall structure of a program, the theory on which it is based, the limitations of the theory and the program, and the results of an application of the program.

Occasionally, the work term experience may not yield a suitable topic for a work term report. If this is the case, a student may base the work term report on a literature review. A report of this type should cite a range of references, provide a critical review of these references, and synthesize them into a commentary on the state of the art of the particular technical area. The report must contain significant analytical or engineering design content.

1.3.2 Confidential Reports

We are grateful to employers that allow you to use confidential material. Reports based on such material are treated with great care. They are seen by three people: one technical marker, one English marker, and the work report coordinator. Confidential reports are kept in sealed envelopes during the marking period. If an employer is comfortable with this procedure, a formal agreement of confidentiality is not needed. You may simply write CONFIDENTIAL across the cover page and the title page of your report, and it will be treated appropriately.

If you would prefer a more formal approach, you may sign a confidentiality agreement. You are welcome to use a form provided by your employer; otherwise, you may use our confidential agreement form (Appendix D). In any case, we will certainly act in accordance with your employer's wishes.

Another option is to sanitize your report by disguising the identity of your employer and all parties involved. If this option is chosen, the report will be treated as a non-confidential report. However, this approach is not suitable for all reports. If you choose this method, in the letter of submittal and in the introduction, you must provide the names that have been changed to ensure confidentiality.

1.3.3 Audience

The general principle of good writing is that the text should be easily comprehensible to the reader. Work reports should be written so that a faculty reviewer can readily understand them. The writer should not explain the meanings of routine scientific, mathematical, and engineering terms. If the topic of a report is specialized, it may be appropriate to include a glossary at the end of the report.

2. Administration

2.1 Marking

Work term reports must be submitted during specific academic terms (Table 1) and form part of

Table 1 Required Work Term Report Submissions

Report	Environmental & Geological	Civil
WKRPT 100	1B	2A
WKRPT 200	2B	3A
WKRPT 300	3A	3B
WKRPT 400	4A	4A

the academic program for the corresponding term. On all grade reports and transcripts, the four work term reports are identified as WKRPT 100, WKRPT 200, WKRPT 300, and WKRPT 400 as appropriate. Work reports are named according to the academic term in which they are submitted, not the work term. Work terms, on the other hand, are associated with the academic term immediately preceding the work term. For example, the Civil 3A work report is normally related to the 2B work term.

Work reports are worth 60% for editorial/writing quality and 40% for technical content. For the communication assessment, an A or A+ report is a pleasure to read, i.e., the grammar and spelling are practically without errors, the flow of ideas is smooth, and the style is clear and convincing. A “B” report is acceptable but has enough shortcomings to be slightly jarring or annoying. A “C” lacks clarity.

The marking process also identifies resubmits. “Resubmits” applies to reports that are confusing or unclear enough that the reader loses confidence in the technical material. This category also includes reports with an inappropriate tone, such as those that are either overly polite or pompous, even if they are well written.

2.1.1 Marking Procedure

Work reports are due on the second Tuesday of the school term during the class professor hour. Professors begin the process with an assessment of the technical content. They provide technical feedback and, in particular, identify the work required for reports that must be revised.

They also review the report presentation (format, grammar, style) in enough detail to enable them to assign a mark and identify the reports that must be rewritten. These reports are passed on to the English markers for detailed feedback.

Due to time constraints, you are permitted to correct your errors and resubmit your report, at the most, once for English and once for technical content. A report that is still unacceptable after resubmission is recorded as failed. This failing grade can be cleared if you submit either a corrected or a replacement report in a later term.

2.1.2 Recognition

The best report from each class receives the Sandford Fleming Foundation Award for excellence in written communication. Prize winners and runners up are invited to the Dean's Honours List Luncheon, at which award certificates are presented. An additional annual prize presented is the Best Environmental Design Award.

3. Formatting and Style

Many methods for formatting reports are acceptable in different contexts. However, many companies, journals, and government agencies require that reports follow specific formulas. These guidelines illustrate the formatting instructions required by the Department of Civil and Environmental Engineering. The report is checked for correct and consistent formatting and style. This section explains the details of the components that the markers look for.

3.1 Appearance

Appearance is important in the business world, so the report should look professional. Any photocopied material should be clearly legible and aligned with the margins. Handwritten page numbers and labels are unacceptable because they give the impression of casual writing, which detracts from the report. These guidelines provide an example of the required format.

3.1.1 Font and spacing

Reports should be typed using double (2X) line spacing. The use of a 12-point Times Roman or similar font is recommended. Bold type should not be used to emphasize words within the text, although bold used for headings is acceptable.

Except for the Summary, the Table of Contents, the Lists of Tables and Figures, and the References, you should not start each section on a new page. That is, beginning with the Introduction, each section should follow immediately after the previous one. Large blank spaces

should not be left between sections of the main body. However, if the text is block formatted with no indentation of the first lines of the paragraphs, as these guidelines are, an extra space should be inserted between paragraphs.

Work term reports should be printed on one side of white paper only.

3.1.2 Margins and Page numbers

A minimum width of 25 mm should be used for the top, bottom, and right margins. A slightly wider (maximum 30 mm) left-hand margin should be used to allow for binding. All text should be aligned with the left margin, except for indented quotes.

Pages must be numbered. The numbers can be located at the top or bottom of the page and can be placed in the middle of the page or in the right-hand corner. However, numbering must be consistent throughout the report. Pages for the introductory sections of a report should be numbered using lower-case Roman numerals. The first page to be numbered with an Arabic numeral is the first page of the Introduction section. Sample page numbering for the introductory pages are found in Section 5.6.

3.2 Length of Reports

The text of the main section of work term reports, from the beginning of the Introduction to the beginning of the Conclusions, should be within the range of 3000 to 5000 words, excluding tables and figures. Reports that are shorter or longer than this size may be rejected.

4. Other requirements

4.1 Software and Spell-check

Work term reports should be prepared on computer software that is accessible to the author during an academic term so that corrections may be readily undertaken. The use of an electronic spell-checker is expected. Note, however, that the Canadian version is expected if it differs from the U.S. version.

4.2 Standard International Units

The International System (SI) of units should be used throughout the report. If the British (or Imperial) system of units is used during the work term, then SI equivalents must be quoted in parentheses immediately following the Imperial units.

5. Structure

Work term reports should be organized in the following sequence:

Front Cover – (no page number)

Letter of Submittal – no page number

Title Page – considered to be i, but not indicated

Summary (or Executive Summary) – page ii

Acknowledgments (optional) – page iii if included

Table of Contents – page iii or iv, depending on whether acknowledgements are included

List of Tables – page iv or v, depending on the length of the list and whether acknowledgments are included

List of Figures – page iv or v, depending on the length of the list and whether acknowledgments are included

List of Appendices (if appropriate) – page iv or v, depending on the length of the list and whether acknowledgments are included

Main Section – beginning with the Introduction, page 1

Conclusions

Recommendations (optional)

References

Glossary (optional)

Appendices, (optional)

5.1 Front Cover

Figure 1 illustrates the information required on the front cover: the title, the employer, the author's name and affiliation, and the date (e.g., December 2010 rather than December 22, 2010). The front cover may be enhanced with relevant graphics; however, it is important to maintain a clean and uncluttered appearance.

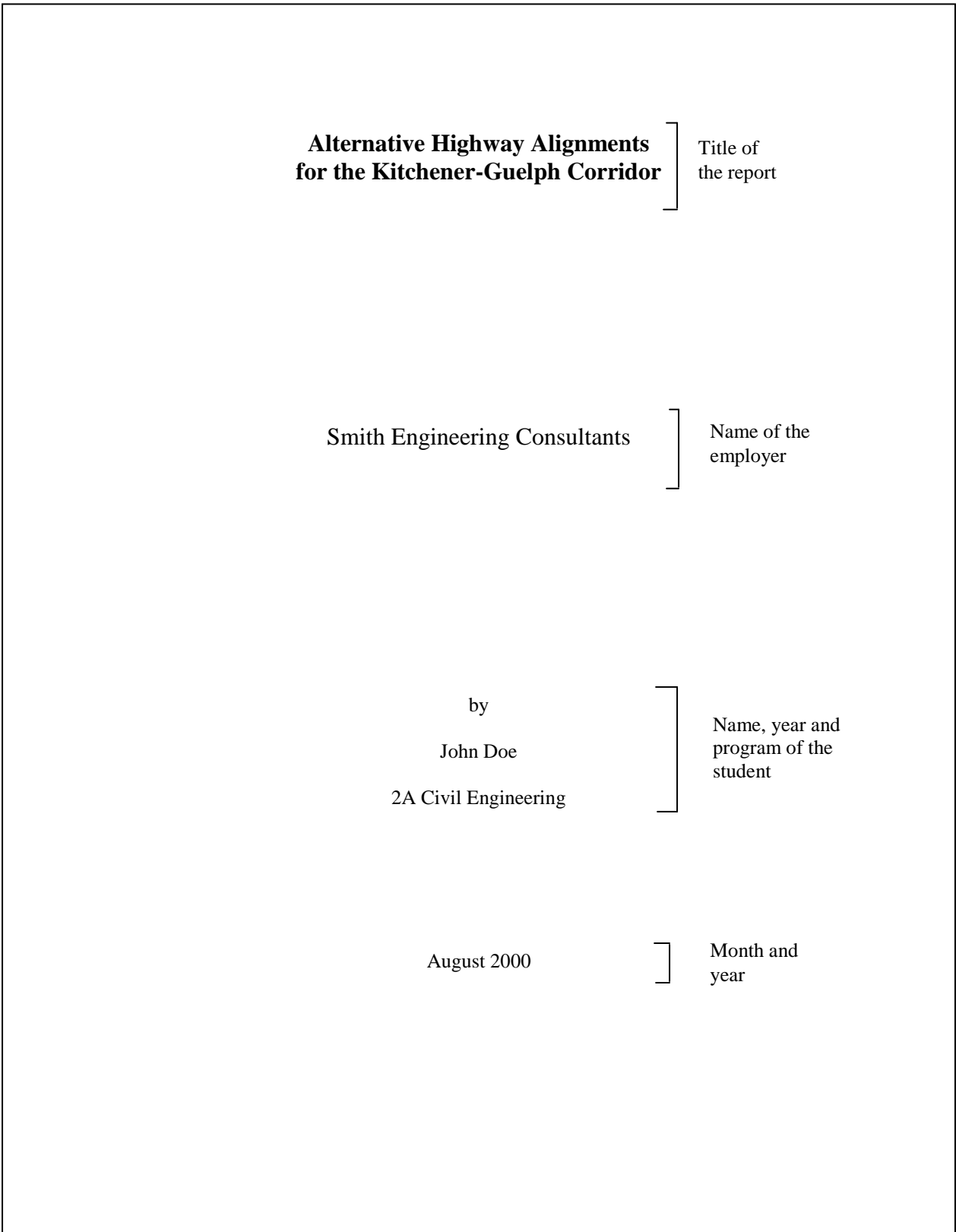


Figure 1 Layout of the front cover of work term report

5.2 Letter of Submittal

The letter of submittal should adhere to standard business letter format rules and should be dated and addressed to the incumbent Associate Chair of Civil Engineering, Undergraduate Studies (Figure 2). Unless you are using company letterhead, your home address should be included at the top of letter, followed by the date and addressee. The addressee's information should match exactly what would appear on the envelope. In a formal business letter, the correct punctuation after the salutation is a colon, e.g., "Dear Sir:."

The letter should identify the title of the work report being submitted, the company for which you worked, your immediate supervisor, the number of the report (i.e., second, third, etc.), and a declaration that the report was written by you and has not received academic credit at the University of Waterloo or any other academic institution. The letter of submittal must be signed.

5.3 Title Page

The title page should contain the same information as the front cover but must not contain graphics, illustrations, etc.

1000 King Street North
Kitchener, ON N2M 2T8

December 22, 2010

Dr. Maria Anna Polak
Associate Chair, Undergraduate Studies
Department of Civil and Environmental Engineering
University of Waterloo
Waterloo, ON N2L 3G1

Dear Dr. Polak:

This report, entitled "Alternative Highway Alignments for the Kitchener-Guelph Corridor," was prepared as my 2B Work Report for Smith Engineering Consultants. The purpose of this report is to evaluate the impact of three potential highway-routing schemes for the proposed Highway No. 7 realignment project slated for completion in 2015. This report is my second of four work reports required by the Department of Civil and Environmental Engineering at the University of Waterloo.

Smith Engineering Consultants is an engineering consulting firm with its head office located in Kitchener. The firm provides municipal and environmental engineering services and specializes in the planning and design of transportation-related projects. The firm has been involved in previous high-profile alignment projects in Ontario.

Throughout my work term, I was employed in the Environmental Division. Managed by Mr. Bill Smith, P.Eng., the division is involved primarily with the analysis of large transportation-related projects that may have an adverse environmental impact.

This report was written entirely by me and has not received any previous academic credit at this or any other academic institution. I would like to thank Mr. Smith for assisting me during the preparation of this report. I would also like to thank Ms. Kim Manners, P.Eng., for proofreading my report and providing valuable comments that greatly improved the appearance of the final report. I received no other help with the report.

Sincerely,

(signature)
John Doe
ID# 99 000 000

Figure 2 Sample letter of submittal

5.4 Summary

The Summary section is one of the most difficult components of a technical report to write well. The real aim of the Summary is to convey the main points of a report to senior management personnel who do not usually become involved in technical details. For this reason, it is sometimes labeled Executive Summary. It should be written last and must be written in full sentence form. The Summary may be thought of as a mini-report of about 250 words (3-4 paragraphs) that must be able to be read and understood in isolation from the main report (Figure 3). It must not exceed one page and should include the following:

1. the scope and purpose of the report (including background/rationale);
2. the technical approach taken, which might include a discussion of the alternatives considered and the major technical findings; and
3. the principal conclusions and recommendations.

It must not include

1. tables and figures or
2. a direct reference to tables, figures, and sections contained in the main report.

5.5 Acknowledgments

You may wish to acknowledge the contributions made to the report by others. For example, your work term supervisor may have helped you with the problem definition and supplied references.

You may use the letter of submittal to acknowledge the help you received, or you may include a separate section for that purpose. The Acknowledgements should be written in a formal manner

Summary

The Regional Municipality of Waterloo is presently examining three potential routing schemes for the proposed realignment of Highway No. 7 between Kitchener and Guelph.

Route A incorporates a complete reconstruction and upgrade of Highway No.7 along the existing corridor. Route B involves a parallel alignment located north of the existing right-of-way. Route C consists of a new highway alignment located south of the existing highway alignment. This report presents an evaluation of these alternative highway corridor routes. An environmental impact assessment and a preliminary cost-benefit analysis are included for each route.

Route B, the least expensive highway alignment, would result in the destruction of approximately 200 ha of an existing wetland complex. Route C represents a compromise between Routes A and B. Realignment of the highway corridor south of the existing alignment would minimize the loss of wetland and prime agricultural land, but the current design would be considerably more expensive to construct and operate.

Based on the findings of this study, further consideration of the proposed highway Routes A and C is recommended.

Figure 3 Sample summary page

although they can include some text that expresses personal sentiment, e.g., “I gratefully thank my supervisor for her guidance.”

5.6 Table of Contents

The Table of Contents lists all the main sections of your report and any subsections that have headings (Figures 4, 5). The Title Page is understood to be page i, but it is not listed in the Table of Contents. The Table of Contents is also not listed.

Care should be taken to ensure that each entry in the Table of Contents refers to the correct page number of your report. You should use a dotted line to assist the reader’s eye in scanning from the heading to the page number.

If the Table of Contents is so long that the List of Tables and List of Figures occur on a separate page or pages, they should be listed in the Table of Contents with an appropriate page reference (Figure 4). If they fit on the same page as the rest of the Table of Contents, then they do not have a page reference (Figure 5).

If your report has no more than three appendices, you may list them individually with each title as part of the Table of Contents. If your report has more than three appendices, they should be listed separately in a List of Appendices that should follow the List of Figures. In that case, the page where the List of Appendices is located is referenced in the Table of Contents with a lower case Roman numeral page number.

TABLE OF CONTENTS

	Page
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List of Tables.....	iv
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1.1 Background.....	1
1.2 Scope of Study	2
2.0 Alternative Highway Alignments.....	3
2.1 Route A.....	3
2.2 Route B	4
2.3 Route C	4
3.0 Environmental Analysis	5
3.1 Methodology	5
3.2 Route A	6
3.3 Route B	7
3.4 Route C	8
4.0 Cost-Benefit Analysis	9
4.1 Methodology	9
4.2 Results.....	10
5.0 Conclusions.....	12
6.0 Recommendations	13
References	14

Figure 4 Sample of a Table of Contents with more than three appendices and lengthy lists of tables and figures

TABLE OF CONTENTS

	Page
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1.1 Background.....	1
1.2 Scope of Study.....	2
2.0 Alternative Highway Alignments.....	3
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2.2 Route B.....	3
2.3 Route C.....	4
3.0 Environmental Analysis.....	6
3.1 Methodology.....	6
3.2 Route A.....	6
3.3 Route B.....	7
3.4 Route C.....	8
4.0 Cost-Benefit Analysis.....	9
4.1 Methodology.....	9
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Figure 3. Alternative Route B.....	5
Figure 4. Alternative Route C.....	5

Figure 5 Sample Table of Contents with only three appendices and brief lists of tables and figures that fit on the same page as the Table of Contents

5.7 Main Section

The main body of the report should be divided into a number of major sections (1, 2, 3...) and minor subsections (1.1, 1.2, 1.1.1, 1.1.2, etc.) that impose an appropriate structure on the material. A chapter structure is inappropriate for a report consisting of less than 5000 words (i.e., 20 pages at 250 words/page). The hierarchy of headings should be limited to a maximum of three levels. These guidelines provide an example of this three-level structure. Lists should be presented using a consistent structure, such as the one used in these guidelines.

The first component of the main section must be the Introduction. The purpose of the Introduction is to provide background and rationale for the report and establish the general scope, significance, and context of the problem addressed by the report. The Introduction should conclude with a brief statement that conveys information about the contents of the body of the report.

The next part of the main section should provide a detailed technical description of the problem, any potential solutions to the problem, an analysis of any alternative solutions, and, finally, the justification for the solution selected. Providing more detailed suggestions about the structure of the main section is difficult because it varies substantially with the nature of the problem described and analyzed. The guiding principle is that the main body should proceed from a general statement of the problem to the particular technical justification of the course of action being recommended.

5.8 Conclusions

The Conclusions should contain only statements that follow logically from the content of the report. The aim of the Conclusions is to reinforce the findings of the report. New information should not be added to the Conclusions. The Conclusions should not refer directly to components of the main body of the report, nor should they contain tables, figures, or references. For example, "The temperature effects, analyzed on page 6 showed that" is unacceptable. Bulleted or numbered lists are acceptable but must have an introductory sentence.

5.9 Recommendations

The Recommendations contain statements about additional work that might be required. For example, "Insufficient data were available for this study to establish conclusively the temperature effects, and a sequence of laboratory strength tests is recommended."

6. Tables, Figures, Appendices, and Equations

6.1 Tables and Figures

Readers may refer only to the tables and figures, which therefore require special attention. For example, tables and figures should have titles that are self-explanatory. Thus, the titles often need to be more than one sentence. Explanatory tables and figures should be incorporated into the text as soon as possible after the paragraph in which they are first cited, and each one must be

mentioned in the text preceding it. If a figure requires a full page, it should follow immediately after the page containing the first reference to it.

The following types of tables and figures should be placed in the appendices:

1. tables and figures that contain only background information;
2. bulky tables and figures; and
3. large repetitive collections of tables and figures, such as results from repeated tests. In this case, one insightful example should be incorporated into the text, and the rest should appear as an appendix.

Refer to tables and figures with a capitalized whole word not with an abbreviation. You should not use the word "see." For example, "The results can be expressed in a graph (Figure 1)."

Tables and figures can be numbered consecutively throughout the report (1, 2, 3, 4, etc.) or numbered consecutively within each section (1.1, 1.2, 2.1, 2.2, etc.). Headings or captions for tables are placed above the table while those for figures are placed below the figure. Tables and figures that are a full page and that are landscape oriented should be positioned with the top of the page in the binding. Figure 6 illustrates the placement of a table with an appropriate caption within the text of a report. The figure includes both the text of the sample report and the placement of the table after the text.

Figure 7 illustrates the layout of a page containing a graph or plot. The figure includes both the text of the sample report and the position of the figure. Labeling the axes with either standard terms or ones that have been defined in the text is important, and these labels should include the

It is expected that the three highway alignments would result in different levels of usage by local motorists. Table 1 lists the preliminary traffic volume projections for each alternative.

Table 1. Anticipated Daily Traffic Volumes

Routing Alternative	Year 2005	Year 2025
A	45,000	52,000
B	40,000	47,000
C	55,000	63,000

Figure 6 Example of a table included in a work report. It should be noted that the table is presented immediately after it is first introduced in the text.

units of measurement. The symbols used to plot different functions on the same graph should be clearly differentiated, and they should be identified in a legend or in the figure caption. They

Figure 13 illustrates the observed streamflow recessions for three drainage events. After the cessation of all stormwater input, the streamflow from the wetland takes the form of a long, well-behaved recession lasting several weeks before the next significant precipitation event occurs.

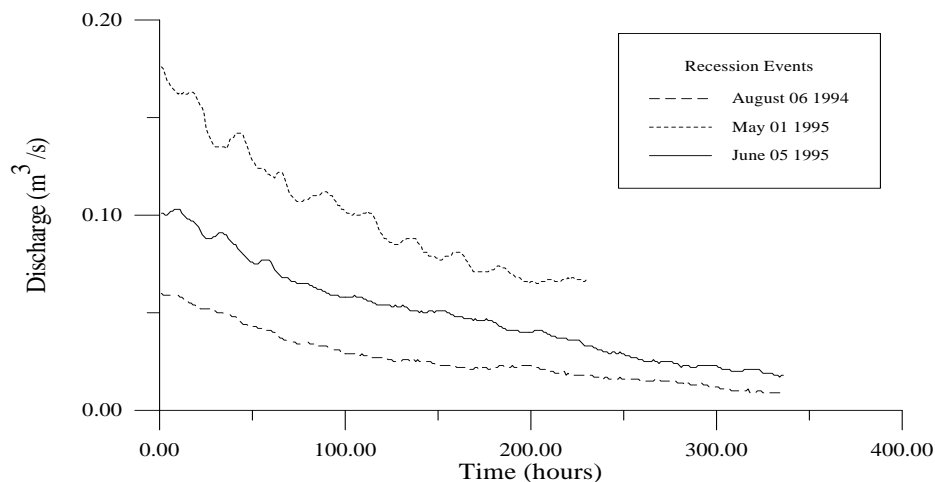


Figure 13 Streamflow recessions at the study site

Figure 7 Example of a figure included in a work report

should also be consistent from graph to graph if more than one graph is used. As well, the font size used on graphs should be readable.

6.2 Appendices

The appendices of a report are intended for long tables, bulky maps, detailed descriptions of analytical procedures, and other such material that might be used as resource materials by others. Routine specifications and codes that are readily available elsewhere should not be included in appendices. Appendices should be structured systematically with titles that reflect the content.

6.3 Equations

Equations that are referred to later in the text should be numbered with right-justified Arabic numerals in parentheses. Equations may be numbered consecutively throughout the report (1, 2, 3, 4, etc.) or consecutively within each section (1.1, 1.2, 2.1, 2.2, etc.). Figure 8 illustrates

To estimate the volume of lake sediment that must be excavated, an average of the cross-sectional areas between the lake transects was computed using

$$V_T = \frac{1}{2} (A_A + A_B) L_1 + \frac{1}{2} (A_B + A_C) L_2, \quad (1)$$

where V_T is the total volume of lake sediment to be excavated; A_A , A_B , and A_C are the cross-sectional areas at sections A-A, B-B, and C-C, respectively; and L_1 and L_2 represent the distances between cross-sections A-A and B-B and B-B and C-C, respectively.

Figure 8 Example of an equation layout in a work report

the typical placement of an equation within a report.

7. Citations and References

Citations and references are meant to give authority to the contents of the report and to direct the reader to more details. For simplicity and clarity, the list of references is limited to publications that are cited specifically in the text or used as sources for tables and figures. General references not cited in the report should not be included in the reference list.

There are several alternative styles of documentation. This work report follows the American Psychological Association (APA) style, which is summarized in both Hacker (1996) and Buckley (2003). These books also include discussions of citations and references. These books are available in the University of Waterloo Bookstore or the library. Other references are available in section PE 1408 of the Dana Porter Library. Appendix A of these guidelines also contains explanations and examples of common grammar errors. Appendix B contains copies of the overhead transparencies used by Barb Trotter in her lectures about common grammar errors. Appendix C is a checklist of sample errors that your computer can help you find.

The following report excerpts (in italics) demonstrate common examples that show how references to literature should be cited in the text and incorporated in the reference list.

7.1 Journal Papers

Lafontaine (1988) has measured wind loads on very tall exhaust stacks

in the mining areas of the Sudbury region.

or

Several authors have measured wind loads on tall exhaust stacks in the mining areas of the Sudbury region (Lafontaine, 1988; Yung, 1982), and these measurements have been used to establish design wind loads.

The reference list would then contain the following:

Lafontaine, P.W. (1988). Wind load measurements on smelter exhaust stack in the Sudbury region. *Journal of Wind Engineering*, 17(5), 171–183.

Yung, F. S. (1982). Drag coefficients for large structures. *Journal of Structural Engineering*, 21(3), 99-103.

Italics are used to emphasize the document title used in a library search because authors of individual papers published in journals are not listed in library catalogues.

7.2 Books

McCarthy (1988) describes the analytical method that is most commonly used for slope stability analysis of the marine clays in the St. Lawrence Valley.

The reference list would then contain the following:

McCarthy, D.F. (1988). *Essentials of Soil Mechanics and Foundations: Basic Geotechnics*. Prentice Hall, Englewood Cliffs, NJ.

7.3 Technical Reports

Geometric design standards for major arterial roads are specified by the Ontario Ministry of Transportation (Highway Design Branch, 1992).

The reference list would then contain the following:

Highway Design Branch. (1992). *Geometric Design Standards for Ontario*.
Ministry of Transportation of Ontario, Downsview, ON.

An important principle in citing published literature is that an individual reading a report should readily be able to obtain the reference materials. As much as possible, avoid citing obscure papers and personal communications, for example, as these may not be accessible to a reader of a report. You can give credit to these sources of information in your letter of submittal or the acknowledgments.

7.4 Electronic Sources

Electronic sources are relatively new, and many suggestions for methods of referencing them are available. The department has selected the following guidelines. The important consideration is

that the reader needs to be able to access your sources. Items are to be cited in the text with the author and date as usual. For example,

Nutall (1999) has published a different opinion of MP3.

This item would appear in the list of references as follows:

Nutall, C. (25 September 1999). It's on MP3 but I like it.

http://news.bbc.co.uk/1/hi/english/sci/tech/newsid_443000/443086.stm (retrieved 9 April 2000).

If the author is not identified, use the name of the company or organization that posted the web site. Use the date last updated as the date of publication. If there is no date listed, use the date you accessed the site. The date of access is important to include in any case because the web page may have changed since you used it, and the reader may not be able to find the information without knowing the date.

For your work reports, if the item referenced is five pages or less, you must include a printed copy of the item as an appendix. If the item is longer than five pages, include the relevant sections as an appendix.

8. Glossary

If a glossary is needed, it should follow the last reference page. If your report involves particularly specialized vocabulary, include a glossary of terms; otherwise, it is unnecessary.

References

- Andrews, G.C. and Ratz, H.C. (1996). *Introduction to Professional Engineering* (5th ed.). University of Waterloo, Waterloo, ON.
- Buckley, J. (2003). *Checkmate: A Writing Reference for Canadians*. Nelson Canada, Scarborough, ON.
- Canadian Engineering Accreditation Board. (1993). *1993 Annual Report*. Canadian Council of Professional Engineers, Ottawa, ON.
- Hacker, D. (1996). *A Canadian Writer's Reference* (2nd ed.). Nelson Canada, Scarborough, ON.

Appendix A - Common Grammar Errors

Explanation of symbols used for marking work report grammar
For additional information, see indicated sections of Buckley's *Checkmate* and Hacker's *A Canadian Writer's Reference*

ab – avoid abbreviations in a formal report

You may use i.e., e.g., and etc., as well as abbreviations for units of measure. All other words should be used in full, such as the names of days of the week, months, streets, provinces, etc.

ACR – define acronyms the first time you use them

If the acronym is a commonly understood term, such as PC or LAN, you may use it without defining it. A useful guideline may be whether all instructors and students in the Faculty of Engineering would know the term. When you define an acronym, use the complete words first, followed by the acronym in parentheses. You may then use the acronym alone in the remainder of the report.

Correct – Ministry of Transportation (MOT)

ad – adverb or adjective error – Buckley/Hacker G4

Adjectives describe nouns; adverbs describe verbs, adjectives, and other adverbs.

Incorrect – Drive slow. (“Drive” is a verb and must be modified by an adverb. “Slow” is an adjective.)

Correct – Drive slowly.

agr – faulty agreement–Buckley/Hacker – G1, G3

Subjects and verbs must agree in number; pronouns must agree in number and gender with the nouns they refer to.

Incorrect – The statistical information about the three companies are listed on the Internet. (“Information” is the subject of the verb and is singular; therefore, the verb must be singular.)

Correct – The statistical information about the three companies is listed on the Internet.

Incorrect – Each user sat at their own terminal. (The pronoun “their” is plural and cannot stand for a singular noun – “user.”)

Correct – Each user sat at his or her own terminal.
The users sat at their respective terminals.

art – article (a, an, the) missing or article not required – Buckley B1, Hacker T1

Articles are complex in English; however, the most common article errors are the use of a singular, countable noun without an article and the use of “the” incorrectly. Countable nouns are ones that have a plural form and therefore can be counted, such as books, tables, hats, etc.; by contrast, non-countable nouns have only a singular form, such as information, software, music, etc. A singular countable noun must be preceded by an article, “a” or “an” for general and “the” for specific nouns.

Incorrect – Experiment must be conducted.

Correct – An experiment must be conducted. (general singular)

The experiment was successful. (specific singular)

Experiments must be conducted. (general plural)

awk – awkward wording within the sentence

Generally, the sentence does not work and needs to be rewritten. Usually, the sentence does not correctly convey its intended meaning.

cap – capital letter error – Buckley M3, Hacker S3

Generally, generic terms are not capitalized, and specific proper names are. Be consistent throughout the report in capitalizing technical terms. Do not overuse capitals. Capitals are used to emphasize the relative importance of words, so the use of too many capitals detracts from the purpose of capitalization.

In titles, nouns, verbs, adjectives, and adverbs are capitalized, while articles, prepositions, and conjunctions are not.

comp – incomplete or inexact comparison – Buckley S6-c, Hacker E2-c

Do not use a comparative, e.g., “more” or “better,” by itself. Specify more than what or better than what, or use the absolute form rather than the comparative.

Incorrect – The results show that method A is better.

Correct – The results show that method A is better than method B.

The results show that method A is very good.

Make comparisons between like items – you may have to insert “that of” or “those of.”

Incorrect – Waterloo’s engineering program is better than Western. (The program is compared to the university.)

Correct – Waterloo’s engineering program is better than that at Western. (The two engineering programs are compared)

cont – no contractions in a formal report

Use “cannot,” “do not,” “is not,” etc. Do not use “can’t,” “don’t,” or “isn’t.”

cs – comma splice – Buckley G6, Hacker G6

Two independent clauses (complete thoughts) cannot be joined by a comma alone; use a period, a semi-colon, or a comma and a conjunction. Be especially careful with “however” and “therefore.”

Incorrect – The experiment was a success, however, the model has no practical applications.
Correct – The experiment was a success; however, the model has no practical applications.
The experiment was a success. However, the model has no practical applications.

The experiment was a success, but further options need to be explored.

dm – dangling modifier – Buckley S1-e, Hacker E3-e

A dangling modifier is often the "ing" form of a verb with no "doer" specified. Make sure that whenever an action is implied in a descriptive phrase the noun described is the “doer” of the action.

Incorrect – By replacing the sewer system, the life of the infrastructure would be prolonged.
(The life is not doing the replacing.)

Correct – By replacing the sewer system, the city will prolong the life of the infrastructure.
If the sewer system is replaced, the life of the infrastructure will be prolonged.

Look for sentences that begin with “When doing . . .,” “By doing . . .,” “While doing . . .,” etc. If you rewrite the sentence without the “ing,” you have a better chance of avoiding a dangling modifier.

frag – sentence fragment – Buckley G5, Hacker G5

A sentence must be a complete thought, not a piece of a thought.

Incorrect – When the company decided to implement the proposal.

Correct – When the company decided to implement the proposal, many of the managers objected.

fs – fused sentence – Buckley G6, Hacker G6

Two independent clauses (complete thoughts) cannot be joined without punctuation. Use a period, a semi-colon, or a comma and a conjunction.

Incorrect – Method A is preferable to method B it costs less.

Correct – Method A is preferable to method B; it costs less.
Method A is preferable to method B. It costs less.
Method A is preferable to method B, and it costs less

h – hyphen missing or not required – Buckley M2, Hacker S2

If two or more words that are not adjectives are used together as one “made-up” adjective that says “what kind of” and they appear before the noun, they are hyphenated. If they appear after the noun, they are not hyphenated.

Correct – The Bombshelter is an on-campus pub.
The Bombshelter is a pub on campus.

A state-of-the-art computer is expensive.

Exception: Adverbs that end in -ly are not hyphenated.

Correct – a well-regarded professor
a highly regarded professor

mixed – mixed construction - Buckley S3, Hacker E5

Mixed construction indicates a sentence that contains elements that do not sensibly fit together. You cannot begin with one grammatical plan and switch without warning to another.

Incorrect – The results ranged between 300 to 500. “Between” is followed by “and.” “From” is followed by “to.”

Correct – The results ranged between 300 and 500.
The results ranged from 300 to 500.

Note that “is when,” “is where,” and “the reason is because,” are not acceptable.

Incorrect – The reason the experiment failed is because the temperature was not controlled.

Correct – The experiment failed because the temperature was not controlled.

mm – misplaced modifier – Buckley S1-c, Hacker E3-b

A modifier is an adjective (describes a noun) or an adverb (describes a verb, adjective, or other adverb) or groups of words that function as adjectives or adverbs. They are placed next to the words they describe.

Incorrect – The regulations set by the Ministry of the Environment for controlling effluent overflow are not strict enough. (It is not the environment that is for controlling the effluent overflow.)

Correct – As set by the Ministry of the Environment, the regulations for controlling effluent overflow are not strict enough.

Particularly watch the word “only” and other restrictors that need to be placed immediately before the words they restrict.

Correct – He only walked on the road. (This sentence indicates that the only action he was doing was walking.

He walked only on the road. (This sentence indicates that the only place he was walking was on the road.)

om – omitted word

p – error in punctuation – Buckley 5P, Hacker P

, – comma required – Buckley P1, Hacker P1

no , – no comma – Buckley P2, Hacker P2

; – semi-colon error – Buckley P3, Hacker P3

: – colon error – Buckley P4, Hacker P4

' – apostrophe error – Buckley P5, Hacker P5

par or ¶ – new paragraph needed – Buckley W3, Hacker C3

A paragraph should be about only one topic. The initial sentence, called the topic sentence, should indicate the subject of the paragraph. When you change topics, you need to change paragraphs.

pass – ineffective passive – Buckley U4-c, Hacker W4-c, G2-h

In active voice, the subject of the sentence is the “doer” of the action, and the object is the receiver of the action. In the passive voice, the subject of the sentence is the receiver of the action, and the “doer” is the indirect object, usually after “by.” The active voice is considered to be more effective writing than the passive because it is shorter and it specifies at the beginning of the sentence who is doing the action. In business and technical writing, very often you wish not to specify the “doer,” and the impersonal passive is permitted. The “doer” is not specified. However, if the doer is specified – usually after “by” – then you can put the sentence into the active voice.

Active – The engineer solved the problem. (use)

Passive – The problem was solved by the engineer. (avoid)

Impersonal passive – The problem was solved. (use)

pl – plural form of the noun is required or is incorrect

This error is often connected with the article error. If the noun is countable, that is, if it has a plural form, you must not use it in the singular without an article; however, you may pluralize the noun rather than adding the article.

Incorrect – Report from the ministry indicated the required changes.

Correct – The (or A) report from the ministry indicated the required changes.

Reports from the ministry indicated the required changes.

prep – incorrect or missing preposition

Prepositions are connecting words. They have a noun or a pronoun as an object and form phrases that function as either adjectives or adverbs. The preposition used in any particular sentence is determined by idiom, that is, by custom over time.

Incorrect – The department decided to publish an analysis on the problem.

Correct – The department decided to publish an analysis of the problem.

red – redundant – Buckley U2-a, Hacker W2-a

An important goal in technical and business writing is brevity. Redundant words repeat the meaning already stated.

Incorrect – Various different sources all provided the same statistics.

Correct – Various sources provided the same statistics.

ref – error in pronoun reference/vague reference – Buckley G3-b, Hacker G3-b

Each pronoun must refer clearly to only one noun. “This,” “that,” and “which” are pronouns. When these words are used to indicate whole sentences or paragraphs, the error is called a vague reference. You can correct a vague reference by adding a noun.

Incorrect – Method A produces better results if the temperature is monitored. This must be carefully supervised.

Correct – Method A produces better results if the temperature is monitored. This process must be carefully supervised.

rep – repetitive word choice – Buckley U2-b, Hacker W2-b

shift – distracting shift in tense or person – Buckley S2, Hacker E4

Maintain consistent tense. Stay in third person – he, she, it, they, nouns. Do not use “we” or “you.”

S.I. – Provide the S.I. equivalent

sp – misspelled word

Use the spell-checker.

t – error in verb tense – Buckley G2-f, Hacker G2-f

Maintain consistent tenses. Consistent does not mean identical; it means that you write your report from one perspective with respect to time. It must be clear to the reader whether the project has not yet begun, whether it is in progress, or whether it has been completed. Statements that are universally true, such as the law of gravity, are always in the present tense. The present tense is also used to discuss the contents of the report.

Incorrect – This report will discuss the options available to the company.

Correct – This report discusses the options available to the company.

vb – incorrect form of the verb – Buckley/Hacker G2

Use the grammatically correct forms of verbs.

Incorrect – The experiment run correctly.

Correct – The experiment ran correctly.
The experiment was run correctly.

w – wordy – Buckley U2, Hacker W2

Be concise. Eliminate unnecessary words.

Incorrect – In order to correct the problem, the company hired an expert due to the fact that the process was complex.

Correct – Because the process was complex, the company hired an expert to correct the problem.

wc – word choice is incorrect, too informal, or too vague – Buckley U3, Hacker W1, W3, W4

Use correct, formal, standard language that the reader is expecting. Avoid vague words, such as “things” or “do something.” Check the specific examples in section B5 of Appendix B.

// faulty parallelism – Buckley S5, Hacker E1

Items in balanced expressions and lists require consistent grammatical structure.

Incorrect – It is easier to hit the computer than determining the problem. (not parallel – “to hit” is an infinitive; “determining” is a participle.)

Correct – It is easier to hit the computer than to determine the problem.
Hitting the computer is easier than determining the problem.

? – unclear, or error in general usage, but the marker wonders whether it is correct for technical purposes

Appendix B - Barb Trotter's Lecture Notes

Part A. Good Practice

- **Use the Civil Engineering Guidelines.**
- **Use the specified order of pages and sections.**
- **Use the specified format for title/cover page.**
- **For the letter of submittal, use standard business letter format and address your letter to the incumbent Associate Chair, Undergraduate Studies.**

- **Tables and Figures**

1. Reference in preceding text – use the full word and capitalize it.
Figure 1. Do not say “see” – it’s redundant and second person.
 2. Position in text – tables and figures should follow a.s.a.p. after being mentioned in the text, i.e., the next paragraph or the next page.
 3. Position of headings – Table – top
Figure – bottom
 4. Landscape-oriented tables and figures – the bottom of the table or figure is at the outside edge of the page.
- **Do not put headings or the lead-in to a list by themselves at the bottom of a page. They belong with their sections.**
 - **Use S.I. units or give the S.I. equivalent in parentheses.**
 - **For References, use the method specified in the guidelines.**
 - **Aim for a professional appearance.**
 - **If you use block format with all lines left justified, you’ll need to insert an extra space between paragraphs because some final lines in paragraphs extend to the right margin, and the reader cannot discern the beginning of a new paragraph.**
 - **Use present tense to discuss the contents of the report.**

This report will analyze the effects of temperature on concrete. (avoid)

This report analyzes the effects of temperature on concrete. (use)

- **The summary, conclusions, and recommendations sections must not be longer than 1 page each. In fact, combining the conclusions and recommendations into a single 1-page long section is preferable. The goal is brevity.**

The conclusions section should contain

1. no new information, arguments, or discussion
2. no tables or figures
3. no references to sections in the body of the report
4. no repetition of the introduction or background information

▪ **References**

1. Include only sources referred to in the report - it's not a bibliography.
2. Use the method of citation specified in the Civil Engineering guidelines, the American Psychological Association (APA) system.
3. Put items in alphabetical order.
4. For electronic sources, include the date accessed. Follow the format specified in the Civil Engineering Guidelines.

Part B. Grammar Tips: Avoiding Common Errors

B.1 Dm – dangling modifiers

Present participles (going, doing, being, using, programming), when used without a form of the verb “to be,” pretend to be either nouns or adjectives.

Noun – Studying is hard work.

Adjective – Hoping to win the jackpot, Tom bought a lottery ticket.

“Hoping” modifies the subject of the main clause in the sentence – Tom. Tom is also considered to be the “doer” of the action of hoping.

When it is not clear what the participle or adjective phrase modifies, it is called a **dangling modifier**. For example,

Incorrect – Deciding to join the Navy, the recruiter enthusiastically pumped Joe’s hand.

Incorrect – Upon seeing the barricade, our car screeched to a halt.

Incorrect – Though only sixteen, the University of Waterloo accepted Mark’s application.

Strategies for correcting dangling modifiers

Example 1. Walking home that evening, **the moon** lit our way. (Dangling – the moon can’t walk.)

Correct by stating the doer of the action.

While **we** were walking home that evening, the moon lit our way.

Correct by making the subject the doer of the action.

Walking home that evening, **we** found our way lit by the moon.

Correct by rewriting.

We walked home that evening with the moon lighting our way.
That evening, the moon lit our way home.

Example 2. When purchasing software, cost should be the primary consideration.
(Dangling – cost isn't purchasing the software.)

Correct by using the impersonal passive:

When software **is purchased**, cost should be the primary consideration.

Example 3. By taking careful measurements, the problem was solved. (Dangling – the problem didn't take the measurements.)

Correct by using a gerund (participle used as a noun):

Taking careful measurements solved the problem.

Other examples:

While employed at ABC Company, my research was devoted to concrete.
(Dangling – the research wasn't employed.)

While I was employed at ABC Company, my research was devoted to concrete.

To receive a rebate, a report must be filed. (Dangling – the report doesn't receive a rebate.)

For the company to receive a rebate, a report must be filed.

B.2 Commas and Other Punctuation

Commas are structural indicators – they set off the “extra bits” in a sentence.

1. Put a comma after introductory word groups, that is, words, phrases, or clauses that appear before the subject of the main clause.

Incorrect – For any location within the drawing information applicable to the case must be specified.

Correct – For any location within the drawing, information applicable to the case must be specified.

2. Use a comma before descriptive elements at the end of a sentence, such as a participial phrase.

The new system regulated many of the city’s facilities, including sewers.

3. Use commas around parenthetical expressions inserted in the middle of a sentence.

My professor, Dr. Smith, likes us to stay awake in class.

4. Use commas to indicate non-restrictive elements – extra information.

For camp, the children needed clothes that were washable. (“...that were washable” is restrictive.)

For camp, the children needed sturdy shoes, which were expensive. (“...which were expensive” is extra; “sturdy” is the restrictive part.)

5. Do not put a comma between two items joined with a conjunction unless the items are independent clauses.

The engineer and the accountant worked overtime. (a+b)y

The engineer worked overtime and complained about it. a (x+y)

The engineer worked overtime, and the accountant complained about it.

Incorrect – The river runs beside the road and the power plant and the dam are nearby.

Correct – The river runs beside the road, and the power plant and the dam are nearby.

6. Put a comma after the second last item in a series.

Civil engineers write interesting reports about concrete, traffic, and pipelines.

7. Do not put one comma between the subject and its verb.

Incorrect – The main concern about implementing the proposal, is the cost.

There can be two commas between the subject and its verb.

The book, which I had already read, was on the table.

8. cs – comma splices

These are the choices for joining two independent clauses:

- ;
- . T
- , and (or another conjunction)

9. Conjunctive adverbs: however, therefore

If they appear between two complete sentences, they are punctuated either with a semi-colon or with a period:

I read a report about sidewalks; however, I do not understand what the alligators are doing with the polygons.

The concrete did not slump. Therefore, the sidewalks will not have alligator cracks.

If they appear within one complete sentence, they are punctuated with commas as follows:

The load, however, was calculated incorrectly.

10. : -- colon

" :" means **and that is**
or
and they are

You should not place a colon between a verb and its completion or between a preposition and its object.

The reasons are

- 1.
- 2.
- 3.

The reasons are the following:

- 1.
- 2.
- 3.

The report was written by

- 1.
- 2.
- 3.

The equation is

$$a=b$$

where a and b are variables

The equation is as follows:

$$a=b$$

where a and b are variables

11. ; – semi-colons have only two uses

a) A semi-colon has the same weight as a period. It needs an independent clause (complete sentence) on either side. Use it when the two ideas are closely connected.

I never use semi-colons; I don't know where to put them.

- b) **In a list of three or more items, if at least one item has internal punctuation, separate the items with semi-colons.**

The electives were English; Sociology; Sexuality, Marriage and the Family; and Economics.

B.3 mm – misplaced modifier

Modifiers (adjectives and adverbs) are placed next to the words they modify. “Only” is a restrictor, which is like a multiplier and restricts whatever comes immediately after it. The position of “only” in the following sentences changes the meaning according to where it is placed.

a + b + c + d
He walked on the road.

a + 2b + c + d
He only walked on the road.

a + b + c + 2d
He walked on the only road.

a + b + 2c + d
He walked only on the road.

2a + b + c + d
Only he walked on the road.

The same rules apply to other restrictors – primarily, just, mainly, etc.

Too many modifiers:

The **general manager** decided to implement the policy recommended by the Engineering Department that would reduce the cost of the project to gain a competitive edge.

To gain a competitive edge, the general manager implemented the cost-reducing policy recommended by the Engineering Department.

Expressions of time, place, and purpose that modify the entire sentence should be placed at the beginning of the sentence.

B.4 h – hyphens

The Bombshelter is an on-campus pub.
The Bombshelter is a pub on campus.

We saw three big gray whales. (no hyphens)

I bought a state-of-the-art computer.

An old car repairman – the man is old
An old-car repairman – the cars are old

set up, back up, log on, etc:

When each of the above terms is used as a verb, it is two words. If used as a noun or adjective, it is one word or hyphenated. For example,

He set up the computer system.
The computer set-up (or setup) works very well.

B.5 Wc – word choice

- because/as

“As” can be used to mean “because” as long as there is no possibility that it will be misinterpreted to mean “while.”

The process is implemented as the container becomes very hot. (ambiguous)

When in doubt, use “because” or “while.”

- Affect/effect

Affect is usually a verb. “A” for action word.

Effect is usually a noun. thE Effect

The results of the experiment were affected by the effects of humidity and temperature.

- i.e. = that is = the whole set
e.g. = for example = a subset

The weather, i.e., atmospheric conditions...
The weather, e.g., rain and snow...

Note that both abbreviations are followed by a comma – they are parenthetical.

- if/whether
Do not use “if” when you mean “whether.”
“If” implies one condition; “whether” implies two.

I wonder whether it will rain.
If it rains, we will cancel the picnic.

- allow for = make allowance for; allow = permit

Do not add the “for” if the sentence works without it.

The calculations allowed for the weight of the snow.
The system allowed users to log on.

- **as well as = in addition to**

Do not use “as well as” where “and” will do.

Incorrect – The company needed to reduce its emissions of chlorine, carbon monoxide as well as ozone.

Correct – The company needed to reduce its emissions of chlorine, carbon monoxide, and ozone.

The company needed to reduce its emissions of chlorine and carbon monoxide as well as that of ozone.

- **that**

ensure that, provide that, recommend that, etc.

These words are followed by a direct object – a noun or a noun clause.

If the object is a clause, it should begin with the word “that” to indicate that a verb follows.

Incorrect – To ensure an accurate description of events is presented, she reads the reports carefully.

Correct – To ensure that an accurate description of events is presented, she reads the reports carefully.

Incorrect – Everybody knows a turkey and some mistletoe help to make the season bright.

Correct – Everybody knows that a turkey and some mistletoe help to make the season bright.

- **Recommend**

Do not use an infinitive after recommend.

Incorrect – It is recommended to publish this report.

Correct – It is recommended that the report be published.

- **Do not begin a sentence with “also.” Use “in addition” or “furthermore” or place the “also” within the sentence.**
- **“Data” is to be used for the plural only. Use “datum” for the singular.**
- **“As such” does not mean “therefore.” “Such” is a pronoun that must stand for a noun. Ask, “As what?” If the answer is not the noun immediately preceding the sentence, use “therefore.”**

Incorrect – The project is behind schedule. As such, it will not be completed in time for inspection. (**Such does not refer to schedule**)

Correct – The project is behind schedule. Therefore, it will not be completed in time for inspection.

Correct– The project is a government-funded initiative. As such, it requires government approval. (**Such does refer to initiative**)

B.6 Constructions Tips

- / slash

Do not insert spaces on either side of a slash.

Incorrect – The guidelines specify the ways to treat tables and / or figures.

Correct – The guidelines specify the ways to treat tables and/or figures.

- **Mixed constructions**

Be careful to use the correct combination of words in expressions.

not only...but also

between...and

from...to

The values range between 6 to 10. (incorrect)

The values range from 6 to 10.

Note that "-" is a substitute for "to". Thus, "6–10" is the same as "6 to 10".

- **Countable nouns**

Countable nouns are expressions of individual units, such as marbles. They have a plural form.

Non-countable nouns, such as information or software, are lumps. They cannot be used in the plural. Different words accompany countable and non-countable nouns:

an **amount** of work, but a **number** of employees

fewer calculations, but **less** knowledge

Input, software, and impact are not countable and may not be used in the plural.

- **w – wordy**

Be concise. Do not use more words than you need to state the meaning clearly. Do not use vague words, such as “some,” “a lot,” “things,” “do something,” etc. Avoid the use of "there is" or "there are" and "it" as an indefinite pronoun.

All the beams were designed based on the species of wood being Douglas fir.
(wordy)

All the beams were designed for Douglas fir.

It is good practice to check the results. (wordy)

Checking the results is good practice.

▪ **agr – agreement**

The verb must agree in number with the subject.

The concrete slumps. The engineer’s shoulders slump.

Note that a compound subject is plural.

Incorrect – A westbound left-turn lane and an eastbound acceleration lane **is** proposed.

Correct – A full assessment of the present conditions and a complete cost estimate **are** required.

Incorrect – A **pronoun** must agree with the noun **they** stand for in number and gender.

Correct – A **pronoun** must agree with the noun **it** stands for in number and gender.

Incorrect – Each **user** sat at **their** own terminal.

Correct – Each **user** sat at **his or her** own terminal.

The **users** sat at **their** respective terminals.

▪ **art – article**

non-countable nouns – ones that are a lump and have no plural form, such as information, justice, etc.

countable nouns – ones that are individual units and have a plural form, such as hats, books, etc.

The articles rules, for countable nouns only, follow:

	Singular	Plural
Specific	the	the
General	a/an	no article

You can't say hat (incorrect)
 You must say a hat
 or hats
 or the hat(s)

The noun “of something” is specific; therefore, it usually needs the definite article.

The University of Waterloo – not University of Waterloo

▪ **awk – awkward**

A word cannot have more than one function in one sentence.

Incorrect – In the construction industry provides a major job market.

“Industry” cannot be both the object of the preposition “in” and the subject of the verb “provides.”

Don't use a pronoun to state the subject twice.

Incorrect – In the construction industry, **it** provides a major job market.

Correct – The construction industry provides a major job market.

Make sure that the pieces of your sentence fit together precisely.

1. It would be best to find potential tenants and what use they plan for the warehouse.
 (incorrect)

$$\begin{matrix} \mathbf{2} & & (\mathbf{a} & & + \\ \text{[It would be best to find]} & \text{[potential tenants]} & \text{[and]} & \text{[what use} \\ \mathbf{b} & & & \text{]} \\ & & & \text{they plan for the warehouse.]} \end{matrix}$$

2(a+b) – both the 2a and the 2b must work. You can't say “find what use they plan...”
 You have to say “find out what use they plan...”

It would be best to find potential tenants and to determine the use they plan for the warehouse.

It would be best to find potential tenants and to determine their planned use for the warehouse.

2. Replacing the floor will make the entire floor stronger and will last longer. (incorrect)

$$\begin{matrix} \mathbf{2} & & \mathbf{a} & & + \\ \text{[Replacing the floor]} & \text{[will make the entire floor stronger]} & \text{and} & & \end{matrix}$$

b

[will last longer.]

It isn't the replacing that will last longer—it's the floor. The 2b doesn't work.

Replacing the floor will make the entire floor stronger, and a new floor will last longer.

3. Self-cladding is [the most efficient], [one of the most cost-effective,] and [most aesthetically pleasing] option.

(a+b+c)y – by doesn't work because you can't say "one of the most cost-effective option"—it needs to be "options."

Self-cladding is the most efficient and most aesthetically pleasing option; it is also one of the most cost-effective solutions.

Watch "required." Sometimes the meaning is ambiguous because "required to" means "has to."

Incorrect – The new equipment was required to begin the process. (The equipment didn't have to begin the process.)

Correct – The new equipment was required in order to begin the process.

Count the separate items in a list and make sure you put an "and" between the last two complete items.

The site was examined with respect to [geology], [hydrology], [types and distribution of contaminants.] (incorrect)

a+b+[(c+d)y] – the last item in the list is the whole phrase "types and distribution of contaminants."

The site was examined with respect to geology, hydrology, and types and distribution of contaminants.

- **ref – pronoun reference**

A pronoun stands for a noun – he, she, it, they, this, that, these, those, etc. A pronoun stands for one noun, and it must be very clear which noun the pronoun stands for.

Incorrect – The manager considered the result of the experiment and the opinion of the researcher. He determined that it should be the deciding factor.

Correct – He determined that the researcher's opinion should be the deciding factor.

Always put a noun with the word “this.”

Incorrect – This means that you must be careful when you use pronouns.

Correct – This rule means that you must be careful when you use pronouns.

- // parallel structure

Balanced expressions, such as ones with “and,” “or,” “not only...but also,” and comparisons, and items in a list should all have the same grammatical structure. Parallel structure avoids jarring the reader and also provides a navigational tool to clarify how the sentence fits together.

She is responsible for stocking merchandise, all in-store repairs, writing orders for delivery, and sales of computers.

(not parallel – 2 participles and 2 nouns)

She is responsible for stocking merchandise, repairing items in the store, writing orders for delivery, and selling computers. (parallel)

It is easier to hit the computer than determining the problem. (not parallel – one infinitive and one participle)

Hitting the computer is easier than determining the problem. (parallel)

It is easier to hit the computer than to determine the problem. (parallel)

B.7 lists

- **Both of the following formats are correct:**

Example – no punctuation

The study of engineering will help you

- think clearly
- solve problems
- find a job

Example – commas and a period

The study of engineering will help you

- think clearly,
- solve problems, and
- find a job.

- **If one of the items in the list contains internal punctuation, the items must be separated by semi-colons.**

Example – internal punctuation

The study of engineering will help you

- think clearly;
- solve difficult, complex problems; and
- find a job.

- **If the items in the list are complete sentences, semi-colons or periods can be used.**

Example – complete sentences in a list

The study of engineering will help you in the following ways:

- you will learn to think clearly;
- you will increase your problem-solving abilities;
- you will have a better chance of finding a job.

The study of engineering will help you in the following ways:

- You will learn to think clearly.
- You will increase your problem-solving abilities.
- You will have a better chance of finding a job.

- **If the items in the list are very long, the lead-in should be a complete sentence with a period.**

Example – long list items

The study of engineering will help you in the ways described in the following sections.

Appendix C - Proofreading Checklist

Use the “find” function on your computer to check for the following:

1. **This** – Is it followed by a noun, that is, “this something”? If not, insert a noun.
2. **However, therefore** –
Is it between two complete thoughts? If so, it needs a semi-colon or a period before it.
Is it in the middle of one complete thought? If so, it needs a comma before it.
Note that a comma usually follows these words.
3. **Allow for** – Can you remove the “for”? If so, do it.
4. **Only** – Do you want it to restrict the word that immediately follows it?
5. **t** – Check for contractions. If there are any, change them to the complete words.
6. **Between** – Is it followed by “and” and not “to”?
7. **By** – Is the sentence in the passive voice with the “doer” specified? If so, change it to active voice.
8. **You/your, we/us/our** – Change to third person.
9. **In order** – If it is at the beginning of a sentence, delete it.
10. **Data** – Is it plural? If not, use datum.
11. **If** – Is there one condition or two possibilities? If two, use “whether.”
12. **Its, it’s** – “it’s” is a contraction of it is or it has. The possessive form is the one without the apostrophe.
13. **As such** – Does the such refer to a noun? That is, can you ask, “As what?” and the answer is a noun immediately preceding the sentence? If not, and if you’re using “as such” to mean “therefore, change it to “therefore.”
14. Any other errors that you know you repeat. Look for a common word or group of words to check for.

Appendix D - Confidentiality Agreement Form



FORM 1 WORK TERM CONFIDENTIALITY AGREEMENT

EMPLOYER REQUEST:

Date: _____

The employer considers the information in the following work report to be sensitive or proprietary and requests that the University of Waterloo treat the report as **CONFIDENTIAL**.

Employer: _____

Address: _____

The employer requests that the report be evaluated, in confidence, by the Work Report Coordinator as well as one English Marker, and be returned directly to the student.

Signed (student's supervisor): _____

Title: _____ Phone Number: _____

REPORT & STUDENT DATA:

Work Report Title: _____

_____ Report Dated: _____

Prepared by: _____ UW ID # _____

(student's name)

UNIVERSITY CONFIDENTIALITY AGREEMENT:

The Civil and Environmental Engineering Department and the personnel responsible for grading the report agree to maintain the confidentiality of the above-named report. The report will be read only by the Work Report Coordinator, Professor Ric Soulis, and one English Marker. The report will be kept in a secure office until returned to the student.

Signed: _____

Ric Soulis

Professor

Civil and Environmental Engineering

University of Waterloo

Waterloo, Ontario N2L 3G1

Date: _____

Signed: _____

Name (print): _____

University of Waterloo

Waterloo, Ontario N2L 3G1

Date: _____

Appendix E - Marking Sheet

**University of Waterloo Department of Civil and Environmental Engineering
EVALUATION OF WORK TERM REPORT**

PART I - STUDENT/REPORT INFORMATION Academic Term: _____ Report number: _____
 Surname: _____ Given Names: _____ I.D. No. _____
 Program: _____ E-mail Address: _____
 Employer: _____
 Title of Report: _____

PART II - EVALUATION OF EDITORIAL QUALITY (60% of Final Evaluation)

		VG	G	S	U	comments
Style	Overall appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Tables, figures, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Structure	Logical organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Citations and references	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Language	Spelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Grammar and punctuation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Editorial Grade A+ A B C Resubmit Unacceptable for Credit

Comments: _____

Marker: _____ Date: _____

PART III - EVALUATION OF TECHNICAL CONTENT (40% of Final Evaluation)

Engineering Science Evaluation		VG	G	S	U	comments
	Creative mathematical/scientific investigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Clear application to Engineering problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Engineering Design Evaluation						
	Creative solution of Engineering problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Generation of two or more options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Critical selection of best alternative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Cited use of math/science/social science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Technical Grade A+ A B C Resubmit Unacceptable for Credit

Comments: _____

Marker: _____ Date: _____

Overall Grade A+ A B C Resubmit Unacceptable for Credit

Additional Comments: _____

Work Report Coordinator: _____ Tel. Ext. _____ Bldg./Rm. _____ Date: _____

Correction Symbols for Work Reports

*Indicates a more serious error

Occurrences	Symbol	Explanation
_____	ab	avoid abbreviations for a formal report
_____	ACR	define acronyms the first time you use them
_____	ad*	adverb or adjective error
_____	agr*	faulty agreement (subjects, verbs and pronouns agree in number and/or gender)
_____	art	article (a, an, the) missing or not required
_____	awk	awkward wording within the sentence
_____	cap	capital letter error

_____	comp	incomplete or inexact comparison
_____	cont	no contractions in a formal report (use can not, not can't)
_____	cs*	comma splice
_____	dm	dangling modifier
_____	frag*	sentence fragment
_____	fs*	fused sentence
_____	h	hyphen missing or not required
_____	mixed	mixed construction
_____	mm	misplaced modifier
_____	om	omitted word
_____	p	error in punctuation
_____	,	comma required
_____	no ,	no comma
_____	;	semi-colon error
_____	:	colon error
_____	'	apostrophe error
_____	par	new paragraph needed
_____	pass	ineffective passive (subject of the sentences is not the 'doer' of the action)
_____	pl*	plural form of the noun is required or incorrect
_____	prep*	incorrect or missing preposition
_____	red	redundant
_____	ref	error in pronoun reference/vague (must be clear which noun a pronoun refers to)
_____	rep	repetitive word choice
_____	shift	distracting shift in tense or person (maintain constant tense, use third person)
_____	S.I.	provide S.I. equivalent units
_____	sp*	misspelled word
_____	t*	error in verb tense
_____	vb*	incorrect form of the verb
_____	w	wordy (be concise – eliminate unnecessary words)
_____	wo	word order is incorrect
_____	wc*	word choice is incorrect, too informal or too vague
_____	//	faulty parallelism (items in balanced expressions and lists require same grammar structure)

Appendix F - Sample Work Report Schedule

Fall 2010 Work-Report Schedule

Monday, Sept. 13, 2010	First day of classes.
Thursday, Sept. 16	Initial Class Tutorial on Work Report Writing/Formatting, 11:30-12:30, CPH-3607 (Barb Trotter)
Tuesday Sept. 21	Work reports due in Class Professor hour
Friday, Oct. 1	**Last day to hand in late work reports**
Tuesday, Oct. 12	Reports returned from professors English re-submit reports are passed on to English markers for student feedback Technical re-submit reports are returned to students for revision

[Oct. 18-22 Week of midterms]

Tuesday, Oct. 26	English re-submit reports are returned to students for revision
*Thursday, Oct. 28	Tutorial, "How to fix your report" 11:30-12:10 lecture & 12:10-12:20, CPH-3607 question period/format changes (*depends on class) (Barb Trotter/Clay Morgan)
++Tues., Nov. 2 + Wed. Nov. 3	Individual tutorials in E2-2348, 4:30-8:00 (sign up earlier for ½ hour or 1 hour). ++depends on number of students who sign up.
Friday, Nov. 26	Revised reports due in Dr. Soulis's office, E2-3321, by 4:30. Revised reports reviewed by presentation marker and by faculty members

If a revised report is still not acceptable, the report will be a failure. A student can clear the failed work report by submitting a revised report in a subsequent term.

Appendix G - 12 Do's and Don'ts of Report Writing

12 Do's and Don'ts of Report Writing

This is a quick overview of formatting details to adhere to (that are overlooked often by some students) and a few suggestions to help make your report clear, interesting, and professional.

- Use only No. 12 font throughout your report (except for the cover page).
- Use double (2x) line spacing.
- Align text with page margins, 2.5 cm from top, right, and bottom margins with a slightly wider left margin.
- Do not underline text, including headings.
- Do not bold or italicize text.
- Write a maximum of 1 page for each of the Summary, Conclusions, and Recommendations; in fact, the Conclusions and Recommendations can be combined into one section that is only 1 page long.
- Introduce figures and tables in the text just before providing them.
- Do not waste space: that is, do not start on a new page for any section, except the Introduction (page 1) – e.g.

The Conclusions follows on the same page right after the end of the body of the text and the Recommendations follows the Conclusions on the same page;

Note, the References (not a section) follows on the next page after the Conclusions/Recommendations.

- Write in 3rd person.
- Use present tense, preferably, because, generally, it is the simplest tense for the reader to relate to and, most of the time, it is appropriate in writing since, to the reader, the time is “the present.”
- Think of your audience, so, in addition to writing effectively, follow the formatting rules specified in the guidelines because your reader is expecting standard organization patterns.
- Have someone you can trust to be critical of your report proofread your report because it is better that a trusted proofreader, rather than a department marker, identifies clarity/writing/formatting weaknesses with your report.

ONE LAST NOTE

In any case, consider the fact that writing a work report should be viewed as a learning experience whereby you are able to gain valuable practical experience that will benefit your writing and help prepare you for the workplace. And REMEMBER – if you can, you want to minimize the chances of your report being a resubmit; nevertheless, even the resubmit process can be viewed as a good experience because it helps identify areas of writing that students need to work on.