

The University of Iowa
Department of Civil Environmental Engineering
53:030 Soil Mechanics
Fall Semester, 2003

Write-up Guidelines for Lab Experiments 1--4

Following the completion of Lab Assignment No. 4, you will have performed four different types of tests on two different soils: Soil FI-10 is the fine-grained soil treated in Labs 2-4, and soil FI-6 is the cohesionless soil treated in Labs 1 and 2. The specific tests you performed are as follows:

1. Solid specific gravity measurement for the sandy soil (sample FI-6).
2. Grain size distributions on both the coarse (FI-6) and fine (FI-10) grained soils.
3. Liquid and plastic limit tests on the fine-grained soil (FI-10).
4. Shrinkage limit test on soil FI-10.

For the write-up of these four labs assume the role of engineers working in a fictitious geotechnical engineering/soils testing company with an appropriate name of your choosing (the more creative, the better). Assume that the two soil samples (FI-6) and (FI-10) have been forwarded to your company and that the client [Mr. Igor Kodlowzki of the Iowa Roadbuilding Corporation (IRC)] has requested that your company perform the tests of Labs 1-4 so that you can classify and identify the soil for them. Since the client IRC is considering using these soils as highway pavement subgrade materials he also requests your recommendations regarding their relative suitability.

Your group write-ups will consist of a cover letter to the client and a brief report. In the cover letter you should: (1) state which tests were performed; (2) briefly summarize the results of the tests; (3) announce your classifications/identifications of the two soil types; and (4) state the suitability of these soils as construction materials for the application of interest to IRC. Naturally, keep the tone of the letter brief, courteous and professional.

All of the finer supporting details of your work will appear in a brief report, the purpose of which is to present the **results** of the tests you performed. The report will have a main body, and appendices. When presenting large amounts of quantitative data, it is helpful to use graphs and tables. Thus, good reports will make use of clear, concise tables and figures with appropriate titles and labeled axes. Additional items that generally go into the main body of the report are:

1. A title page
2. A table of contents.
3. A brief introductory section.
4. A major section describing the **results** of tests on FI-6. [Do **not** write out the procedures you used to obtain the test results. Instead refer to the test procedures used in Labs 1-4 which you will include in the report's appendices.]
5. A major section describing the **results** of tests on FI-10.
6. In the above major sections, you will want to reference sample computations, as necessary, which will go into the report's appendices.
7. When presenting the **major** results in the main body of the report, use properly labeled plots and tables.
8. The main body should have some discussion and text that give it a smooth sensible flow.
9. Finally, there should be a concluding section, maybe a paragraph or two in length.

10. The report should contain four appendices, one for each of the four labs on which the report is based. In each appendix, include the experimental procedure (just include the lab guideline handouts here – don't waste time re-typing the procedures), raw data collected, and sample computations performed.

Regarding length of the report, make it **concise** and **relevant**. Include in the main report any and all of the information that the client might be genuinely interested in. But don't put in so much detail that information of most pressing interest to the client will be lost. Such extraneous details, if they need to be included at all, should go into an additional appendix to the report. The reports will be graded based on the following:

Letter (10 points)	
Statement of tests performed (1)	Statement of soil classifications (2)
Brief summary of test results (1)	Statements about soil suitability (1)
Neatness and general appearance (2)	Other factors (3)
Report Presentation Style (18 points)	
Title page (1)	Table of contents (1)
Summary Table for soil FI-10 (2)	Summary Table for soil FI-6 (2)
Appendices 4 @ 2 points each (8)	Quality of writing (4)
Lab 1 (10 points)	
Accuracy of measurement of G_s for FI-6	
Lab 2 (20 points)	
GSD for FI-6 (10)	GSD for FI-10 (10)
Lab 3 (20 points)	
Flow curve (4)	LL measurement (4)
PL measurement (4)	Activity index (2)
Mineral identification (1)	Discussion (5)
Lab 4 (10 points)	
SL measurement (4)	Plot of volume versus water content (3)
Discussion (3)	
Synthesis of Lab 1-4 results (12 points)	
AASHTO classifications of FI-6 and FI-10 (5)	USC classifications of FI-6 and FI-10 (5)
Discussion (2)	

If you require additional guidance for writing your reports and letters, formats for writing short technical reports and business letters can be found in a variety of guides to technical writing available in the Engineering Library. You might also briefly consult with Mr. Scott Coffel, 2226 SC, Engineering Technical Writing Center. One of your objectives in writing up this lab assignment and those that follow should be to develop your own successful style of technical reporting.

Finally, it is expected that lab reports be written by lab **groups**, and so teamwork will be essential. [Learning to work successfully in groups is an art to be mastered, and one that will greatly expand career advancement opportunities.] Toward this end, each member of the group is expected to contribute their fair share, on average, to each report. This means that people should avoid being either *slackers* who don't carry their share, or *heroes* who do far more than their fair share, leaving nothing for the remainder of the group to do. To assure that all members are satisfied and have participated in each report, the names and signatures of each group member should appear on the title page of each group lab report.

Good Luck!