**To:** Professor Maddox

**From**: Jesse Ma

**Subject:** Chapter 20 Responses

1. **Parenthetical Terms in Instruction Set**
   1. ZOI (Zone of Influence)
      1. ZOI is an acronym which may not be understood by entry-level engineers with no field experience.
   2. USGS Data (viewer.nationalmap.gov)
      1. USGS (U.S. Geological Survey) data is present in many different places online; therefore, providing the exact location of the data will avoid confusion. There is no parenthetical for USGS because the link provides the meaning to that acronym.
   3. Liquefaction (Sudden loss of strength to saturated (water-heavy) soils due to an applied stress)
      1. Liquefaction is not a common term used outside of geotechnical engineering. Even entry-level engineers may have problems understand this concept because the soil mechanics are complex. There is also a second parenthetical for saturated because that word has multiple meanings. For example, saturated fat is a general term in chemistry and biology.
2. **Sentence Definitions in Instruction Set**
   1. Landuse History is how the land was used (if at all) prior to the new proposed project.
      1. Landuse History is defined because that term is foreign to anyone who lacks land development and/or city and regional planning experiences. This set of instructions is catered towards new graduates with no technical experience; therefore defining this term is necessary.
   2. Gathering this data will require standardized testing methods provided by the ASTM (America Society of Testing Materials).
      1. The ASTM is a very important entity which regulates testing measures; therefore, it is important to emphasize this aspect. A parenthetical is also used because ASTM is not only an entity, but also an acronym.
3. **Extended Definition for Instruction Set**

The ASTM (American Society of Testing Materials), is an entity which regulates standard field tests such as SPT (Standard Penetration Test), CPT (Cone Penetration Test), and VST (Vane Shear Test) to measure soil properties. Other tests the ASTM sets standards for are sieve analyses and compaction tests. There are thousands of different tests the ASTM sets standards for and can be purchased through astm.org.

**To:** Professor Maddox

**From:** Jesse Ma

**Subject:** Claim Letter Packet Technical Review

**4&5: Three Comments**

Comment 1: The claim letter clearly asks for what the writer wants from the reader.

Comment 2: The flowchart in the instruction set clearly labels the tasks to be completed in a specific order.

Comment 3: The set of instructions should include pictures of the descriptions in the timeline. Someone with no knowledge of site investigations will not know what the instructions are talking about even if the instructions are clearly written because there is no visual association.

**6. Document Strengths and Weaknesses**

Comment 1 shows that the document is clear with its demands. In industry, time is money so the clearer the intent, the faster the incident will be resolved.

Comment 2 shows that the document can visually display chronological path with the effective use of a flowchart. Flowcharts simplify chronology and provide a better understanding of certain steps in a process for the readers.

Comment 3 shows that the document does not convey information clearly through visuals. This can be problematic because readers may not associate certain terms and definitions with the actual real life application.

**7. Revisions**

Refer to the last page. All the visuals and descriptions are added based on peer comments.

**8. Why Revisions are Important**

These revisions will allow the reader to associate the described processes with how they are actually performed in the field. Of course, further research on the reader’s behalf will be required because a site investigation involves many standards and regulations. It is impossible to condense multiple textbooks of material into one or two pages.

**Sequence 2**: Claim Letter Packet

**Note:** The set of instructions doesn't directly relate to the claim letter because the claim letter involves engineering compensation which normally does not result in the sender writing a set of instructions for the recipient. Because of this, the set of instructions will be based on the scenario listed below.

**Scenario:** As a result of negligence from DIRT INC, the company had to pay the contractor a generous compensation. After this experience, DIRT INC decides incorporate orientation sessions for their newly hired entry-level engineers to reduce the likelihood of errors in the field. The instruction set attached shows a general summary of how to perform a site investigation.

Jesse Ma

jsswma@gmail.com

10/31/14

John Smith

DIRT INC

1 Grand Ave,

San Luis Obispo, CA 93407

Re**:** Site Investigation Error: Request for Compensation

Dear Mr Smith:

On October 17th, your company performed a site investigation on a lot in Paso Robles for the Arbor Ridge Housing Project.

We are very disappointed with the site investigation performed by your company because the soil conditions, as stated in your report, do not reflect the soil on the site. After placing the several matt foundations on the site, we noticed significant bulges on the some of them from what appears be expansive material in the ground. The soils report shows no soil implications on the site and fails to mention the previous structure on the lot. The prior structure was a brick producing factory which dispersed many fine dry particulates that can expand with increasing moisture content. This complication will set our tight construction schedule back a few months.

To resolve this issue, we hired another consultant to reevaluate the site. It was proven that your initial evaluation was incorrect and lacked very crucial information about the sites soil history; therefore, we ask that you reimburse us for the material and service costs for all of the foundation work we have done so far based on the assumptions in your report. We understand that mistakes do happen, but we also need to keep up with our schedule. We will need to remove all of our placed foundations as well as excavate all the bad material before we can start building again. Enclosed are copies of the invoices which include material, worker compensation, and equipment costs.

As mentioned before, we are on a very tight schedule and any delays will affect our company; therefore, we would like to resolve this situation as quickly as possible. This reimbursement is a quick and fair resolution to our problem.

I look forward to your response to this complication and will wait until November 7th before seeking legal actions. Please contact me at the address above or by phone at 925.822.2000.

Sincerely,

Jesse Ma

Construction Specialist

**Site Investigation: General Instruction Summary**

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| Define ZOI – The ZOI (Zone of Influence) is the extent at which the site’s soil conditions will be analyzed. Defining the site extent will save money and protect the company from lawsuits if irregularities are found outside of the ZOI for the investigation.  Geological Hazards – Geological hazards include faults, landslides, collapsible soil, etc. All if this information can be obtailed from city/county maps and online sources such as USGS data (viewer.nationalmap.gov) and google maps.  Landuse History – Landuse history is how the land was used (if at all) prior to the new proposed project. This can be found by referencing city records.  Groundwater Conditions – Check past, present, and future groundwater conditions and determine if they will impact the site. Sites with high groundwater tables will be subject to higher bouyancy forces. Liquefaction (sudden loss of strength to saturated (water-heavy) soils due to an applied stress) as well as differential settlement may also be issues to consider. Groundwater sampling will follow EPA (Environmental Protection Agency) Guidelines.  Further Investigation – If Landuse History, Geological Hazards, or Groundwater Conditions are found to have detrimental impacts on the site, further investigation will be required to determine whether the ZOI is fit for construction.  Determine Soil Properties – The Soil Properties will govern the foundation design for the buildings. Gathering this data will require standardized testing methods provided by the ASTM (American Society of Testing Materials). Tests on the site will require drilling bores using methods such as SPT ( Standard Penetration Test) and CPT (Cone Penetration Test). |
| Determine Soil Properties  Check Other Blue Categories  Further Investigation Needed |

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| Project Site.JPG  **Define ZOI**: Vicinity map for a project clearly outlining the site extent | Flat_eq_map_anotated.png  **Geological Hazards:** A sample map outlining the major faults in California | land_usePlan.jpg  **Landuse History:** Sample map outlining proposed landuse. Must investigate, present and past landuses by referring to more maps |
| groundwater_sampling.bmp  **Groundwater Conditions:** An Engineer taking groundwater samples from a drilled well. More guidelines found from EPA. | investigation.jpg  **Further Investigation:** Will be highly variable and evaluated in a case by case aspect. | download.jpg  **Determine Soil Properties:** Field engineer utilizing a trip hammer to perform (SPT) |