General Information
Excavation and trenching related injuries and deaths occur every year in the workplace. Many of these incidents occur because adequate measures were not taken to protect employees. One component of safe excavation and/or trench work is the ability to classify soil properly.

Definitions (as they relate to excavation)
- Cohesivity – tendency of soil to “clump” or stick together.
- Compressive strength – maximum force soil or rock can withstand without compacting, measured in tons per square foot (tsf), or firmness.
- Disturbed – recently excavated or areas that have been filled.
- Fissured – fractured or cracked, includes sloughing.

Soil Classification
Soil can be classified into four categories outlined in the table below:

<table>
<thead>
<tr>
<th>Soil Classification</th>
<th>Example</th>
<th>Cohesivity</th>
<th>Thumb test penetration</th>
<th>Compressive strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stable Rock</td>
<td>Limestone</td>
<td>Complete, vertical sides remain intact</td>
<td>None</td>
<td>&gt;100 tsf</td>
</tr>
<tr>
<td>Type A</td>
<td>Clay and clay-mixes</td>
<td>Large clumps, can be formed and retain shape</td>
<td>Slight print visible</td>
<td>&gt;1.5 tsf</td>
</tr>
<tr>
<td>Type B</td>
<td>Silt, loams, disturbed A</td>
<td>Small clumps or large clumps easily broken</td>
<td>base of the nail</td>
<td>1.5 – 0.5 tsf</td>
</tr>
<tr>
<td>Type C</td>
<td>Sand, pea gravel</td>
<td>Flowing or soils with seeping water</td>
<td>Complete</td>
<td>&lt;0.5 tsf</td>
</tr>
</tbody>
</table>

- One trench or excavation site can have multiple classes of soil.

Thumb Penetration Test
- Take a fresh sample from excavated material.
- Press the end of your thumb firmly into the sample.
- Interpret results.

Discussion Date: __________________________
Supervisor: __________________________
Participants: __________________________