MEMORANDUM

To: Debra Mathau (Swinerton)  
cc: William Korger (ZFA)  

From: Dona Mann, PE, GE (A3GEO)  

Date: October 18, 2012  

R.E.: Lateral and Seismic Load Parameters for Lightweight Fill Materials – COM NAC Building

Per your request, we are providing the following lateral static earth pressure and seismic earth pressure values for proposed lightweight Cloverdale Lava Rock (or equivalent) wall backfill which we understand has a unit weight on the order of 60 pounds per cubic foot (pcf).

For backfill with a unit weight of 60 pcf, the following values are considered appropriate:

- Lateral Static Earth Pressure, Restrained Walls = 30 pcf (equivalent fluid - triangular distribution)
- Lateral Static Earth Pressure, Free-to-Rotate Walls = 20 pcf (equivalent fluid - triangular distribution)
- Lateral Seismic Earth Pressure = 6H in psf for wall height, H, in feet (uniform horizontal pressure - rectangular distribution)

Note that the above pressures are only appropriate for: 1) walls that are fully backdrained; and 2) location where the 60 pcf material fills the entire "active failure zone" behind the wall.

Please note that it will not be possible to perform field density tests on Cloverdale Lava Rock backfill to confirm contract compliance from a percent compaction standpoint. Consequently, we will require full-time geotechnical observation during backfill placement to confirm that appropriate equipment and levels of compactive effort are used. In addition, there is a possibility that fines may migrate from the adjacent ground into the Lava Rock backfill over time. We therefore recommend that the excavation back cut be covered with a geotextile filter fabric prior to fill placement.