April 16, 2019 NGE-TFT Project # 5303-19

Ace Dragon Coatings & Foam, Inc.
PO Box 1486
Kenai, AK 99611

Email: winston@ace-dragon.com
Cell Phone: (907) 398-6247

Attn: Winston Gillies

RE: LABORATORY SHEAR STRENGTH TESTING OF THE ECO-RISE™ FOAM SYSTEM MATERIAL THAT WAS SUPPLIED BY ACE DRAGON COATINGS & FOAM, INC.

Winston,

We (Northern Geotechnical Engineering, Inc. d.b.a. Terra Firma Testing) have completed our laboratory shear strength testing of the foam system samples that you provided to us on March 18, 2019.

It is our understanding that the Municipality of Anchorage (MOA) has expressed concerns over the shear strength of the foam system that has been proposed to be used by Ace Dragon Coatings & Foam, Inc. (ADCFI) for re-levelling homes. The MOA's concern is that the foam system, once used to re-level a foundation, will not possess sufficient shear strength to resist the lateral loads imposed on the re-levelled structure.

The foam system that ADCFI is proposing to use for foundation re-levelling, and soil stabilization is called ECO-RISE™ and is manufactured by Specialty Products, Inc. This material is a two component, closed cell, rigid structural polyurethane foam system, that can be produced over a range of specified densities (2.0 pcf – 6.0 pcf). This material is designed to be used for concrete slab, and foundation lifting, along with soil stabilization, and it is our understanding that ECO-RISE™ is approved by, and used in other states for this purpose.

In order for us to evaluate the shear strength of the ECO-RISE™ foam system material, ACFI supplied to us a master sample of 4.0 pcf material, that was prepared by injecting the foam into a container. From this master sample, we prepared three 2.9 inch diameter cylindrical specimens, with axial lengths ranging from 5.3 inches to 5.8 inches. We calculated the average density of the three specimens to be 4.3 ± 0.2 pcf.

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We tested the samples using our calibrated uniaxial compressive load frame, and found the average failure shear stress (τ_f) of the three samples to be:

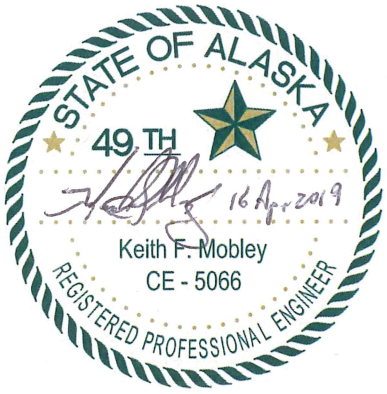
$$\tau_f = 6590 \pm 1720 \text{ psf.}$$

In our professional opinion, the ECO-RISE™ foam system material possesses sufficient resistance to shear deformation and is suitable for use in foundation re-levelling. The shear strength of the ECO-RISE™ foam system material is significantly stronger than the typical material it will be injected into (e.g., a clean sand is typically modelled as having no cohesion or shear strength with no normal load applied).

We greatly appreciate the opportunity to provide you with our professional service. Please contact us directly with any questions or comments you may have regarding the information that we present in this letter, or if you have any other questions, comments, and/or requests.

Sincerely,
Northern Geotechnical Engineering, Inc. *d.b.a.* Terra Firma Testing

Andrew L. Fortt, Ph.D
Project Engineer



Keith F. Mobley, P.E.
President

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