Geotech Solutions Inc.

November 3, 2020 *robertscannon-18-1-consultte*

Stanley and Rebecca Roberts; stan.milliman@gmail.com

Cc: Kevin Patrick; kevin@objectiveadvisorsllc.com; Wendy Kellington; wk@klgpc.com

GEOTECHNICAL ENGINEERING CONSULTATION
Horizontal Drains and Oceanfront Stability
Roberts Tax Lot 600 - Cannon Beach, Oregon

This letter summarizes our response to the dune and horizontal drain issues brought up in the October 29, 2020 Miller Nash letter provided to us by Kellington Law Group.

Per our report, the lot is in the northern part of the larger S-curves portion of ancient slide terrain, which had measurable surface and subsurface movements in the "pre-drain" condition prior to 2007. None of the drains underlie the Roberts Lot or the Oswald West house. Although some impact to the factor of safety of the Roberts Lot would be expected with all 19 drains being removed, having just a few drains removed is not expected to appreciably raise the ground water in the S-curves slide enough to cause instability. This is because of the intentional redundancy in the system of drains (two phase installation), both in elevation and gradient, and the extensive connection of shear zones deep within the slide as observed in instrumentation and "blowback" communication during drain installation.

The Roberts property is not on a beach, active dune, or other foredunes of any kind. Regarding ocean front slope stability, the shear pile system proposed for installation is designed to improve slope stability of the lot at, and eastward, of the system. This is the controlling stability for the lot and any future house, and the S-curves overall stability is secondary. Erosional oceanfront slope instability could occur west of the stability system and west of the lot. The stability system was designed for this, using a battered truss of shear piles extending deep into massive siltstone.

We appreciate the opportunity to work with you on this project and look forward to our continued involvement. Please contact us if you have any questions.

Sincerely,

Don Rondema, MS, PE, GE
Principal

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 21, 1995
DON RONDEMA
Expires 12/31/20

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Geotech Solutions Inc.

November 5, 2020 *robertscannon-18-1-consultte*

Stanley and Rebecca Roberts; stan.milliman@gmail.com

Cc: Wendy Kellington; wk@klgpc.com

GEOTECHNICAL ENGINEERING CONSULTATION
Purpose of Stability Pile System
Roberts Tax Lot 600 - Cannon Beach, Oregon

This letter summarizes our response to the Miller Nash appeal letter provided to us by Stan Roberts on November 4.

We re-iterate from our November 3 letter that the Roberts property is not on a beach, active dune, or other foredune of any kind. It is also not an interdune area.

Regarding ocean front slope stability, we re-iterate that the shear pile system proposed for installation is designed to improve slope stability of the lot at, and eastward, of the system. This is the controlling stability for the lot and the S-curves overall stability is secondary. Stability increases from this system for the lot are roughly 30%. There is likely some uphill stability increase as well, but as the S-curves slide area is much larger than the lot, the system likely has a much smaller impact to increases in S-curves slide stability (hence referred to as secondary). This is true regardless of whether or not a home is ever built. All of this is consistent with Warren Krager's report as well (the engineering geologist, CEG).

Ground water is relatively deep on the site. Off-site surface water from the upper horizontal drain discharge is now being collected. At no time have we ever stated the lot has wetlands.

We appreciate the opportunity to work with you on this project and look forward to our continued involvement. Please contact us if you have any questions.

Sincerely,

Don Rondema, MS, PE, GE
Principal

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 21, 1998
DON RONDEMA
Expires 12/31/20

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