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June 14, 2006

Peter Simcich
Canyon Park Friends of Open Space
3841 Linden Lane
El Sobrante, CA 94803

RE: Proposed Forest Green Estates Project

Dear Mr. Simcich:

At your request we have completed a review of the principal geotechnical report for the proposed Forest Green Estates project. The project involves the creation of over 120 new single family residence lots, almost all of which are underlain by landslide deposits in various states of activity. Some of the landslide deposits are part of huge, complex, nested landslide failures that originate offsite in open space lands owned by the East Bay Regional Park District.

From a technical perspective, the proposed project involves stabilization of landslides on a scale that is seldom, if ever, undertaken unless existing developed properties have been found to be at risk. It is highly unusual to place new residential lots into the landslide environment present at the proposed site, and even more unusual to attempt to stabilize some of the major landslides affecting the project by utilizing tied back pin pile walls and vertical de-watering shafts with horizontal leadouts or pumped leadouts. These techniques are almost exclusively used to mitigate existing problems where existing residential and commercial developments have already been developed and have been found to be at risk. The case becomes even more concerning when one considers the proximity of the project to the Hayward Fault and the almost total lack of discussion and consideration of earthquake loading on the deep seated landslides afflicting the site.

The lead geotechnical firm presenting repair recommendations for the extensive slide complex effecting the proposed site, has a questionable record in analyzing and stabilizing landslides of far lesser extent in sub-divisions throughout Contra Costa County, including the following: Carriage Hills North and Carriage Hills South in Richmond, California; Lafayette Hills Development in Lafayette, California; Shadow Creek in Danville, California; a development by The Housing Group adjacent to

Tunbridge Road in Danville, California; a second Housing Group development off of Sycamore Valley Road in Danville, California; an additional development by Signature Homes off of Sycamore Valley Road in Danville, California. All of these developments have suffered post-construction problems with slope stability and landslide activation.

The analyses presented in the documents we reviewed, failed to discuss with adequate detail the manner in which landslide loads would be counteracted by tied-back piering systems. The discussions are superficial and present results without sufficient detail to understand the analytic process. When compared with the studies performed by Alan Kropp Associates, there is substantial disagreement between the two investigations as to the level of slope stability achieved based on various friction angle evaluations for the native materials.

The stabilization techniques being proposed have a high rate of failure. Pin pile structures were attempted by the State of California (CALTRANS) in an attempt to stabilize a deep seated landslide crossing Highway 24. The sixty inch diameter caissons were sheared off approximately 50 feet below the surface within a year or two of their installation.

Using drainage as the sole technique to stabilize a landslide is also a very high risk undertaking. The risk is associated with failure of the drainage system due to changed conditions after construction. In theory, if the systems can be kept working after long periods of time they can theoretically work. The problem is there are many post-construction changes that effect drainage systems, including plugging and blockage of drainage elements with carbonate and sulfate salts of calcium and sodium; plugging or blockage of soil filters, both synthetic and natural, with clay particles; slow shifting of the ground caused by settlement or soil creep; or rapid shifting of the ground under earthquake loading, resulting in breakage of drainage lines. Where pump systems are used, the danger is in pump failure or power outages, resulting in water table build-up. The recent repair of the 1300 foot long Quail Ridge landslide in Lafayette depended upon a pumped drainage system to maintain landslide drainage. Four years after the system was installed, a pump failure went un-noticed and the entire slide mass reactivated.

In Los Angeles County, where landslide standards have been established based on huge trial and error losses, the retrofitting of landslides prior to introducing new housing requires a safety factor greater than one, under saturated conditions. In other words, the mass distribution within a landslide must be sufficiently stable, so that under saturated conditions (drainage failure) the landslide will not activate.

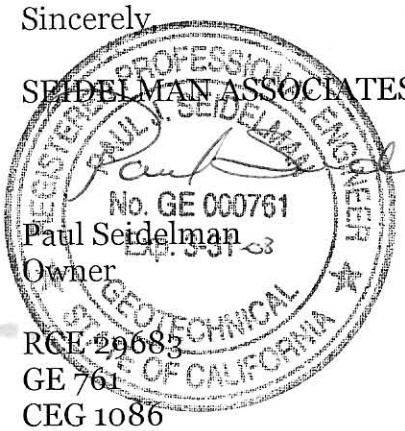
We highly recommend a complete re-thinking of the stabilization techniques being suggested for this sub-division, considering the long history of large scale, deep seated sliding and shallower nested failures within the larger deep complexes. It would seem reasonable to this professional, that the placement of homes on this land can only be safely accomplished by a massive grading project sufficient to remove the unstable surficial deposits, replacing them with deep, well-drained engineered fills that are keyed and benched into underlying bedrock. The drainage systems should be redundant and

should not involve plumbing that passes through unstable land. Full consideration of seismic loads should be included in the design of the landslide retrofits. This includes consideration of the effect of earthquake activity on the structural and drainage aspects of the slide repairs.

We hope this has provided you with some additional useful information in order to properly consider the proposed development.

Sincerely,

SEIDELMAN ASSOCIATES



Paul Seidelman
Owner

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GE 761
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