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MEMORANDUM

To: Brad Gearhart / Preferred Builders

Date: November 14, 2001

GRI Project No.: 955 Phase 5E

From: Dwight Hardin, PE; Michael Zimmerman

IN 1W 26 AB
07800

Re: Proposed Layout
Lot 304, Phase 5E, Forest Heights Development
Portland, Oregon

2720/4

GRI has review plans dated July 14, 2001, for the proposed residence prepared by Alan Mascord Design Associates, Inc (Mascord). GRI met Brad Gearhart on site on November 5, 2001, to discuss the planned residence. GRI's recommendations for development of this lot were originally provided to Windermere/Forest Heights Realty in our August 4, 1998, letter entitled, "Geotechnical Evaluation of Lot 304, Forest Heights Estates #5, Phase 5E, Forest Heights Development, Portland, Oregon."

The plans provided show the residence located toward the front of the lot with the house located on the northern portion of the relatively flat ground along the front half of the lot. The back (western) edge of the house will be constructed on the slopes of a drainage ravine which slopes downward to the west at 2H:1V to 2.5H:1V. The garage is shown on the southern side of the house with the floor elevation shown to be 739 ft, about 3 to 5 ft below the existing grades along the front of the house. A small fill will be required at the western side of the garage to achieve the garage floor subgrade elevation. A driveway is shown to the south of the house. The plans show that the driveway will be constructed with an excavation of 3 to 4 ft. A retaining wall for the driveway is shown on the 2H:1V slopes to the west of the driveway to establish the grade for the western edge of the driveway. As discussed with Brad Gearhart, the fill behind this retaining wall will be composed of free-draining granular material and will be about 8 ft wide by about up to 4 ft deep and will run the length of the wall adjacent the driveway. The footing for the wall will be embedded into the slope at least 5 ft deep. As proposed, this retaining wall and fill should not significantly affect the global stability of the slope. However, to reduce possible risk, we recommend that the wall should be located close to the driveway edge to minimize the amount of fill required.

A rockery wall up to about 4 ft high is shown to the northeast corner of the house. The location of this wall should not affect future structures constructed uphill, as there is a right-of-way for fire protection water lines to the north of the wall.

Control of water for the site was discussed. We understand that rainwater drains for the roof will be piped to the street. If possible, footing drains will also be piped to the storm sewer. Footing drains may also be hard-piped to the bottom of the drainage ravine. The driveway will be sloped to collect rain water which will then be piped to the storm sewer.

While on site, GRI observed some signs of ground movement on the ravine slopes on the downhill of the house. Considering the susceptibility of the soils on the slope to shallow slope movement, fill placed on these slopes should be limited to soil needed to backfill foundation excavations.

Please contact GRI with any questions.

955 PHASE 5E LOT 304 LAYOUT MEMO

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