

CITY OF CLAYTON

OAKHURST GEOLOGIC HAZARD ABATEMENT DISTRICT

GHAD NEWSLETTER
MAY 2004

(Note: The four (4) previous Newsletters may be viewed on the City's Website at www.ci.clayton.ca.us under "City Council"→ Geologic Hazard Abatement tabs)

Historical Review of the Oakhurst GHAD

With many new property owners within the Oakhurst Geologic Hazard Abatement District ("GHAD"), a brief review of the formation of the District may be helpful.

Any development of hillside areas brings with it potential problems far beyond those normally associated with residential subdivisions. In order to offset any City-wide responsibility for future geotechnical problems in this hillside development, the City Council required the developer of Oakhurst Country Club to form the GHAD covering all of the lots and open spaces within the Oakhurst development. The GHAD was assigned the responsibility for the maintenance of certain facilities, e.g., concrete v-ditches and open space storm drains. In addition, the GHAD has the authority, but not the obligation, to perform repairs to public and private properties caused by certain geologic hazards such as landslides.

In order to fund any such operations, the GHAD Board of Directors sets an annual assessment on all of the properties within the District. The storms of 1998 created problems within the District, such as small landslides and filled-in debris basins. In addition, general ground movement was noted in many areas of the Oakhurst development. The District's financial reserves were quickly depleted repairing a small portion of the damage that occurred and by the cost of surveys to monitor the ground movement that had occurred. More revenues were needed to perform all of the repairs, so elections were held in 1999 among the Oakhurst property owners to approve an increased annual assessment. Those proposed increases were voted down three separate times. Therefore, the GHAD has found it increasingly more difficult to fund routine maintenance items, deferring repairs that should have completed several years ago.

In our last Newsletter of August 2002, we reported on the settlement of the lawsuit with William Lyon Homes, aka Presley Homes. A portion of the settlement proceeds was to be used to investigate a potential landslide in the large open space slope between Kelok Way and Golden Eagle Place. Having performed the initial investigative field work, we have now received a report from the District's consultant, Berlogar Geotechnical Consultants ("Berlogar"). The purpose of this Newsletter is to inform the District's property owners of the latest findings in that report.

Investigation

The area of the investigation is a large slope between Kelok Way and Golden Eagle Place in the open space area above North Valley Park.

The slope is up to 95 feet tall and constructed of engineered fill that was graded by Presley Homes at an inclination of 2 horizontal to 1 vertical. The top of the slope is approximately Elevation 855 and the toe (bottom) is at Elevation 760. There is a row of residential lots along the top of slope that front on the north side of Kelok Way. There is a mid-slope bench that runs in elevation between 810 and 820.

The original grading of the area was completed in the late 1980s. According to the record drawings prepared by Hallenbeck and Associates at the time of grading, landslide deposits were encountered while excavating the keyways and benches for the fill slope. In some of the excavations, bedrock was reportedly reached, while in other excavations landslide debris was reportedly left in place below the keyways.

In November 2002, using lawsuit proceeds, two slope indicators (inclinometers) were installed at the site (see map). The first, designated B-1, was located on the downslope projection of the lot line between the houses at 8004 and 8006 Kelok Way, approximately halfway between the toe of slope and the mid-slope bench (Elevation 788±). The indicator was installed to a depth of 120 feet. The second indicator, designated B-2, was installed in the pavement of Kelok Way about 8 feet from the face of curb at the projection of the lot line between the houses at 8010 and 8012 Kelok Way. This indicator was installed to a depth of 64 feet.

Over the past year, Berlogar has performed periodic readings on both inclinometers. In addition, the District has had survey readings taken on an array of thirty-one surface monuments in order to monitor any potential ground movement.

Movement Readings

The readings for the B-1 inclinometer indicate a horizontal displacement at a depth of about 55 feet (Elevation 733). The displacement has steadily increased to 0.9 inches in the 13½ months between January 2003 and February 2004. There has been no indication of movement in the B-2 inclinometer (Kelok Way pavement).

The surveys of the surface monuments included both horizontal and vertical measurements. Generally, there have been no movements exceeding about 1 inch. Some monuments show greater movement between surveys, but the monuments tend to return to near their starting points by the last measurement taken. However, there may be the start of a pattern of slope movement in an oblong area of the slope extending from Monument 1 to Monument 20. These movements tend to show some total horizontal movement in the downslope direction, though less than 1 inch so far.

Consultant's Conclusions

The inclinometer readings suggest a slow landslide movement downslope (northward) bottoming at Elevation 733 (approximately 30 feet below the surface of Golden Eagle Place) and involving a part of the slope. The surface survey data may be showing the beginning of a downslope trend in an indistinct area of the slope that appears to include the locations of indicator B-1 and the residential distress experienced along Kelok Way.

Kelok Way has not yet shown signs of visible slope movement and the B-2 inclinometer has not indicated any ground displacement thus far. The surface surveys have not provided any definitive evidence for or against movement in Kelok Way.

The attached plan shows Berlogar's preliminary estimate of the area of the slope that appears to have the greatest likelihood of involvement in present and future movement. This area at risk is preliminary and approximate. It may be that only part of the area is presently moving or that a larger area could presently be moving. It is also possible that the area involved in movement could enlarge and encompass areas that are presently not moving.

Stabilization Options

Generally, according to Berlogar, there are two methods of landslide stabilization. The first is an earthwork solution that involves removing the landslide material, installing an extensive subdrainage system, and replacing the material as engineered fill. The presence of the existing houses along the top of the slope likely precludes this type of solution. The other method involves a structural solution, such as, the installation of large diameter, deep, drilled, reinforced concrete piers. The cost of a structural solution is substantially more costly than an earthwork solution. Berlogar believes that the cost of a structural solution would likely be in the \$8 to \$12 million dollar range.

For questions regarding this Newsletter or to receive a copy of the Berlogar Report, please contact GHAD District Manager, Rick Angrisani at 925.672-9700. The Berlogar Report may also be viewed on the City's website under the "City Council" tab → Agendas & Minutes, for the GHAD Board meeting of May 5, 2004.

Attachment: Site Plan of Open Space between Kelok Way and Golden Eagle Place

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