

## Memorandum

To : H. Pat Campbell  
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400 P Street, 5th Floor  
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Date : October 29, 1991

From : Department of Conservation  
Division of Mines and Geology  
430 Berket Drive, Sacramento 95814-0189

Subject : Review of the Geologic/Seismic Report for the Hillside School, Berkeley: Harding Lawson Associates, "Fault Hazard Evaluation, Hillside School, Berkeley, California"; report prepared for the Berkeley Unified School District, HLA Job No. 3874,033.03, dated June 11, 1991. File No. Hillside School, 1-6.

In response to a request from your office, we reviewed the above document for compliance with the requirements of the Education Code and Title 21 of the California Code of Regulations, regarding geologic hazards investigations for school facilities within Alquist-Priolo Special Studies Zones.

The focus of the report is stated to include evaluation of fault rupture and earthquake-induced landsliding to Hillside School, and possible causes of existing foundation damage. According to the consultant's report, the investigation was requested by the Berkeley Unified School District to evaluate the "site before undertaking extensive seismic upgrading of the permanent structure" (p.1). The site is referred to as a broad area encompassing the school property around the structures (p.12), which is subdivided into the "eastern site slope area" and the "western site level area" (p.13-14). Therefore, the consultant's general conclusions and recommendations about the "site" appear to apply to the entire school grounds.

The consultant states that ~~"the presence of an active subsidiary trace of the Hayward fault beneath the school and the likelihood of strong, earthquake-induced ground shaking are clearly the primary geologic hazards to Hillside School"~~ (p.19). The consultant observes that a shear exposed by Trench 1 in the western site level area, next to Hillside School, "would be deemed active by the state" (p.17) under the Alquist-Priolo Special Studies Zone Act. The shear projects toward the southern portion of the existing school building. Similar-trending shears were exposed in Trenches 3 and 4, which are on opposite sides of the existing building, in alignment with the "active" shear. On that basis, the consultant concludes that the shears collectively "may define a subsidiary fault zone extending from ... Trench 3 northwestward to Trenches 4 and 1". Their report also notes that shearing exposed at the south end of the existing building (in Trench 3) may extend ~~"northward across the (1964 building)"~~

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~~addition" on the east side of the main building (p.17). The report notes that the shears probably are not the main Hayward fault zone (p.17).~~

— doesn't matter

In addition, the consultant concludes that ~~"earthquake induced landsliding in the vicinity is still a hazard to the school"~~ (p.18-19).

The consultant does not make any specific conclusions or recommendations regarding future development at the site. DMG understands that the Education Code, Section 39002.5, specifies:

"No school building shall be constructed, reconstructed, or relocated on the trace of a geological fault along which surface rupture can reasonably be expected to occur within the life of the school building."

~~Therefore, the presence of the active fault restricts or precludes future development at the site.~~

The nature of shears at the Hillside School appears to be similar to faulting exposed adjacent to the U.C. Berkeley Campus to the southeast. The consultant's background discussion makes reference to several documents produced by the consultant for a U.C. student housing complex. DMG staff observed that investigation, which revealed ~~a complex zone of faulting~~ without the well-developed shears that would be expected for a main trace of the Hayward fault.

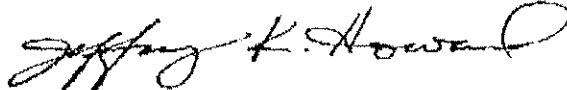
Furthermore, not all trenches excavated across the trend of the fault clearly exposed the trace at that site.

The trace of the Hayward fault is difficult to locate at the surface northwest of the U.C. football stadium (where its location is determined by an offset storm drain). There is a ~~lack of unequivocal fault-creep-related effects to structures, streets, and curbs in this area,~~ which is widely disturbed by the effects of mature tree roots, settlement, and gravitational soil creep. The thick, clayey colluvial soil mantling the hillslope and footslope in the western Berkeley hills may inhibit the propagation of distinct shear planes from bedrock faulting through to the surface, and/or obscure such evidence by ongoing deformation resulting from mass-movement (such as soil creep). Evidence for colluvial soil and soil creep are described in the report for the Hillside site.

In summary, the report addresses the potential for active faulting at the site overall, by concluding that this potential

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is "moderate to high" (p.17). DMG finds this conclusion to be acceptable and makes no request for further information. We note that the scope of the consultant's report does not include definition of buildable areas at the site (e.g., areas more than 50 ft. from all active fault traces). Therefore, any efforts made by the school district toward future development of portions the site, i.e., areas apparently away from active faulting identified in the consultant's report, would require additional evaluation.



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cc: Harding Lawson, Consultant

Reviewed by:

10-29-91 Trinda L. Bedrossian

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