

## **RULES AND REGULATIONS FOR HILLSIDE EXPLORATORY WORK**

The following rules and regulations shall apply on required hillside surface and subsurface exploratory work:

Research of available published regional geologic maps such as those prepared by the USGS, CGS, Dibblee Foundation, City of Los Angeles and consultants' reports available at the City of Los Angeles Department of Building and Safety Records Section shall be performed prior to planning subsurface exploration.

Surface and subsurface exploratory work shall be performed by a licensed soils engineer and a licensed engineering geologist on all hillside grading work, except wherein waived by the Department. Such exploratory work shall be performed for the purpose of obtaining detailed information on which the soils engineer and the engineering geologist shall base recommendations for a proposed project. The work shall be based upon a detailed, accurate topographic base map prepared by the registered civil engineer or land surveyor. The map shall be of suitable scale and shall cover the area to be developed, as well as adjacent areas which may be affected. The map shall include the existing and proposed contours, locations of streets, pads, slopes, structures, property boundaries and pertinent elevations.

### **A. EXPLORATORY WORK LOCATIONS**

The licensed engineering geologist's and licensed soils engineer's exploratory work shall be conducted at locations considered most likely to reveal any subsurface weaknesses which may contribute to any type of slope failure, ground surface deformation or settlement. Particularly, an investigation shall be conducted where the stability will be lessened by the grading or where any of the following conditions are discovered or proposed:

1. At fault zones where past land movement is evidenced by the presence of fault gouge.
2. At contact zones between two or more geologic formations.
3. At zones of a trapped water or high water table are quite often associated with conditions 1 and 2 above.
4. At bodies of intrusive materials.
5. At historic landslides or where the topography is indicative of prehistoric landslides.
6. At adversely-oriented bedding planes, foliation planes, jointed rock, folds, etc.
7. At locations where a fill slope is to be placed above a cut slope.

8. At proposed cut slopes.
9. At the locations of all proposed fills.
10. Wherever water from rainfall, irrigation, private sewage disposal systems or other probable sources from both the grading project and adjoining properties is likely to reduce the site stability.
11. Where the proposed grading may adversely affect the existing or future stability of adjoining properties. The investigation shall be sufficient to outline the problems and solutions to these problems.

## **B. EXPLORATORY REPORTS**

1. The licensed soils engineer and licensed engineering geologist shall submit written reports of their findings to the permittee and the design engineer or land surveyor. Their reports shall include, but not necessarily be limited to, the following minimum data based upon the detailed surface and subsurface investigation:
  - a. The engineering geologist's report shall include a detailed geologic map showing bedrock, soil, alluvium, faults, shears, prominent joint systems, lithologic contacts, seeps or springs, soils or bedrock slumps, landslides or failures and other pertinent geologic features existing on the proposed grading site. Geologic cross-sections, prepared to reasonably depict anticipated geologic structure, shall also be included in sufficient number and detail. The report also shall include detailed logs of all borings, test pits or other subsurface data obtained during the course of the engineering geologist's investigation. The subsurface exploration shall extend to sufficient depth into the bedrock to expose the deepest rock affecting the proposed grading. Where the rock has unsupported bedding planes, the subsurface exploration should extend through the entire wedge of unsupported rock. The report shall include specific details and observations for the soils engineer's use in analysis of the stability of cut slopes in zones of shallow or perched subsurface waters that may affect slope stability.
  - b. The soils engineer's report shall include a map of the proposed grading site showing the locations of all subsurface exploratory test pits or borings. Detailed logs of test pits or boring, including the approximate locations of all soil or rock samples taken for laboratory testing shall also be included. In addition, laboratory test results, soil classification, shear strength characteristics of the soils and other pertinent soil engineering data shall be presented.
  - c. Sufficient cross-sections and slope stability analyses shall be included to substantiate recommendations concerning the vertical height and angle of all slopes on the project.
  - d. Other aids in exploratory work may be used but subsurface exploratory work

sufficient to support the findings shall be performed.

- e. Both the engineering geologist's and soils engineer's reports shall describe the grading project as to its location, topographic relief, drainage, geologic and soils types present, the grading proposed, the effects of such grading on the site and adjoining properties, and shall contain specific conclusions concerning the feasibility and anticipated future stability of the overall project and an analysis of the property on a lot-by-lot basis. Specific recommendations for the correction of all known and/or anticipated geologic hazards on the grading project must be included.

### **C. PERMIT REQUIREMENTS**

Exploratory borings, 30 inches or less in diameter, and test pits that are performed under the direction of a licensed engineer or engineering geologist do not require a grading permit. Any other grading work, such as to create access roads or equipment pads, requires a grading permit. Exploratory trenching may require a grading permit, as determined by the Grading Division of the Department of Building and Safety.