IN THE CITY COUNCIL OF THE CITY OF SAN LEANDRO

RESOLUTION NO. 2000- 162 (2839)

RESOLUTION OF INTENTION CALLING FOR A PUBLIC HEARING ON THE FORMATION OF THE SAN LEANDRO HILLSIDE GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)

WHEREAS, this Resolution is adopted pursuant to Public Resources Code Division 17, "Geologic Hazard Abatement Districts," and

WHEREAS, the City Council has been presented with and reviewed the Plan of Control for the San Leandro Hillside Geologic Hazard Abatement District (the "Plan of Control") attached hereto and incorporated herein as Exhibit A; and

WHEREAS, the City Council desires to consider forming the proposed San Leandro Hillside Geologic Hazard Abatement District (the "GHAD").

NOW, THEREFORE, the City Council of the City of San Leandro hereby resolves as follows:

Section 1. The City Council of the City of San Leandro hereby finds, based on all the evidence in the City files relating to the proposed GHAD, including without limitation, the Plan of Control, the staff report dated October 9, 2000, geologic reports and other materials, that health, safety, and welfare require formation of a geologic hazard abatement district. The area proposed to be included in the GHAD has experienced severe landslide. The proposed GHAD will collect and spend funds for the abatement and mitigation of the landslide.

Section 2. The City Council hereby orders a public hearing on the proposed formation of the GHAD on November 20, 2000 at 7:00 P.M. in the City Council Chambers at 835 East 14th Street, San Leandro, California (the "Hearing"). At the Hearing, any objections to the proposed formation shall be presented. Notice of the Hearing shall be mailed to each owner

of real property to be included within the proposed district as shown on the assessment roll last equalized by the County. Notice of the Hearing shall be mailed first-class, postage prepaid, in the United States mail and postmarked not less than 20 days preceding the date of the Hearing. Notice of the Hearing shall also set forth the address where objections to the proposed formation may be mailed or otherwise delivered up to and including the time of the Hearing.

Introduced by Council Member Galvan and passed and adopted this 16th day of October 2000, by the following called vote:

Members of the Council:

AYES:	Council Members Galvan, Glaze, Grant, Loeffler, Lothrop;	(5)
NOES:	None	(0)
ABSENT:	Mayor Young, Council Member Nardine	(2)

Attest: Gayle Petersen
Gayle Petersen, City Clerk

PLAN OF CONTROL FOR GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)

26 LOTS, HILLSIDE CIRCLE

SAN LEANDRO, CALIFORNIA

SUBMITTED

TO

CITY OF SAN LEANDRO

PREPARED

BY

ENGEO INCORPORATED

PROJECT NO. 4867.1.002.01

OCTOBER 10, 2000

ENGEO
INCORPORATED

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
MATERIALS TESTING

Project No.
4867.1.002.01

October 10, 2000

Mr. Uchenna Udemezue, City Engineer
City of San Leandro
Engineering and Transportation Department
835 E. 14th Street
San Leandro, CA 94577

Subject: Proposed Geologic Hazard Abatement District
26 Lots, Hillside Circle
San Leandro, California

PLAN OF CONTROL

Dear Mr. Udemezue:

The Plan of Control has been prepared and is being submitted as requested by the City of San Leandro in conjunction with the formation of a Geologic Hazard Abatement District (GHAD) for 26 lots on Hillside Circle, in the Bay-O-Vista area.

Very truly yours,

ENGEO INCORPORATED
Prepared by:

Uri Eliahu, GE 2166

Philip J. Stuechel, CEG 1640

REGISTERED GEOLOGIST
PHILIP J. STUECHELI
No. 1640
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

ue/jd:poc

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I. Authority and Scope

The Hillside Circle Geologic Hazard Abatement District ("GHAD" or "District") is proposed to be formed under authority of the California Public Resources Code (Division 17, commencing with Section 26500). Formation of the GHAD has been proposed to administer the repair of the existing landslide on the slopes at the east side of the proposed GHAD area and perform on-going maintenance and monitoring following the slope stabilization. Development of a Plan of Control prepared by a State Certified Engineering Geologist is a requirement for formation of a GHAD. Pursuant to Section 26509, this Plan of Control was prepared by an engineering geologist certified pursuant to Section 7822 of the Business and Professions Code and describes the geologic hazards, their location, and the area affected by them. It also provides a plan for the prevention, mitigation, abatement, or control thereof. As used in this Plan of Control, and as provided in Section 26507, "geologic hazard" means an actual or threatened landslide, land subsidence, soil erosion, earthquake, fault movement, or any other natural or unnatural movement of land or earth.

Property Identification

The GHAD boundary will be as shown on Figure 1 and as described in Exhibit A.

II. Background

The proposed GHAD area encompasses 26 lots accessed by Hillside Circle. The existing residences are located on a relatively-level area flanked by a cut slope on the east side and a fill slope on the west. A large landslide occurred in the cut slope that makes up the rear portions of 2090 to 2150 Hillside Drive during the El Niño rains of 1997-1998. As a result of the landslide movement, the houses at 2126 and 2134 Hillside Drive were removed from their building pads. The landslide was investigated by Cotton-Shires & Associates, who also prepared geotechnical recommendations for several repair options.

The GHAD will mitigate or abate landslide or erosion hazards that could directly affect improved, developed, and accepted properties (as defined in Section VII) within the proposed GHAD limits, in accordance with Section VI.

The GHAD shall have the right to approve any construction, maintenance or repair on the slopes which the GHAD determines has the potential to impact geologic stability. The GHAD will purchase rights of entry and access as necessary for parcels and land within the GHAD boundaries for the purpose of performing GHAD activities.

III. Site Geology

Geologic Setting

The Bay-O-Vista area is located at the west side of the East Bay Hills Block, a segment of the California Coast Ranges believed to have been uplifted during the Late Quaternary period. The State of California has defined an Alquist-Priolo Earthquake Fault Zone around the main active trace of the Hayward Fault, approximately 2,500 feet east of the proposed GHAD area. The local hill front in the study area is defined by other traces of the Hayward Fault that have been mapped by geologists with the United States Geologic Survey (USGS) (Robinson, 1956; Radbruch and Case, 1967; Radbruch, 1969; Dibblee, 1980; Graymer, 1996). According to the current State map, these traces are not "sufficiently active and well-defined" to be included in the State Alquist-Priolo Earthquake Fault Zone program. However, previous workers (Radbruch and Case, 1967; Radbruch, 1969) postulated that surface fault rupture associated with the 1868 Hayward earthquake occurred along one of the traces mapped through the study area.

The bedrock underlying the proposed GHAD area is mapped as Upper Jurassic-age gabbro, an igneous rock. According to the observations of Cotton, Shires & Associates (1998) (CSA), the gabbro is highly fractured and internally sheared. The character of the gabbro is described by CSA to vary from highly weathered and crushed to moderately weathered and moderately strong.

The area of the proposed GHAD has been previously graded. The existing distribution of soils is therefore a function of both the original, pre-grading soil conditions and of the pattern of excavation and filling that occurred during development of the area. Prior to development, the eastern portion of the GHAD area consisted of a relatively-steep, west-facing slope. The base of this steep slope formerly occurred in the central portion of the GHAD area; west of the former base of slope, the pre-graded ground sloped west at a relatively gentle inclination. The original ground configuration was modified to create the existing level areas now occupied by the street

and building pads for the 26 lots. The level areas were constructed by grading that included excavation at the east side of the GHAD area to create the existing 1.5:1 (horizontal to vertical) cut slope, and placement of fill at the west side of the GHAD area to create the existing 1.5:1 fill slope. There is no available geotechnical documentation of the grading.

Seismicity

The San Leandro area, like the Bay Area as a whole, is an area of active seismicity. The Working Group on Northern California Earthquake Probabilities (WGEP, 1999) has evaluated the 30-year probability for a M6.7 earthquake for the entire region and for individual faults. The aggregate probability for the entire Bay Area is calculated at 70 percent; the probability for the Hayward Fault is listed as 32 percent. Based on the above data, it should be assumed that the proposed GHAD area will be subjected to strong seismic ground shaking during the 40-year time period considered for this study.

IV. Slope Instability

Earth stability is the GHAD's prime geotechnical concern at this site. This is not unique to this project, but is of importance for hillside projects in the San Francisco Bay Area. This section describes several types of slope instability which are within the GHAD's responsibility, subject to the provisions of Section VI.

Landslides are a common geologic phenomenon and are part of the process of mass wasting. Weathered or fractured bedrock and soil are transported downslope over geologic time as a result of gravitational and hydrostatic forces. Landslides and earth movement in this bedrock formation are typically rotational slumps and earthflows. Depth of movement is typically about 5 to 25 feet below the ground surface. Earthflows are confined to the upper 3- to 5-foot-thick clayey soil mantle. In the winter rainy season, these earthflows can move at a rate of several feet per day.

A landslide is a deposit of soil and/or bedrock moving downward under the influence of gravity. Landslides include a variety of morphologies and are further defined by type of materials, wetness, and mode of movement. They can consist of mass movements of earth materials that are primarily intact, and occur along discrete shear surfaces. These surfaces (shear or slip planes) can be rotational (conchoidal or concave), such as for earth slumps, or planar, as for translational earth slide or bedrock block glides. Most landslides are truly "complex landslides", sliding, falling and flowing with more than one type of movement and/or material.

Falls are an abrupt free-fall of earth materials off cliffs, steep cuts, or steep stream banks while earthflows are mass movements of earth materials in which the type of movement is one of flowing. When composed of soil finer than gravel size, the flowing material is commonly called a mudflow. A debris flow/debris avalanche is composed of natural earth materials, artificial fill,

and/or organic debris which flow downslope with speed. Most of the material is transported away from the area of initial ground failure.

Soil creep is the slow, often imperceptible, deformation of slope materials under low stress levels, which normally affects the shallow portion of the slopes, but can be deep seated where a weak zone of soil or bedrock exists. It results from gravitational and seepage forces, and may be indicative of conditions favorable for landsliding. Creep can be caused by wetting and drying of clays, by solution and crystallization of salts, by the growth of roots, by burrowing animals and by down slope movement of saturated ground. Colluvium refers to the mantle of loose soil and weathered bedrock debris that progresses down hillsides by creep.

The District shall also be concerned with erosion and sedimentation affecting developed lots or improvements, subject to the provisions of Section II. Erosion is defined as the process by which earth materials are loosened and removed by running water on the ground surface or in the subsurface. Sedimentation is the depositing or settling of soil or rock particles from a state of suspension in a liquid.

Hilly terrain open space either in a natural condition or particularly on excavated slopes can be subject to erosion. Landslide deposits which are sometimes in a loosened condition are particularly prone to erosion. Earth flow-, debris flow- and mud flow-type landslides typically have an area of deposition or accumulation (sedimentation area) at their base. Graded slopes in the District, particularly those in excess of 20 feet in vertical height or those not sufficiently vegetated, can be subject to erosion and therefore a source of transported sediment.

V. Slope Stability Considerations

As described above, a mitigation plan has been prepared by CSA for the existing large landslide. We understand that this plan will involve mitigation of portions of the landslide that could affect houses that remain on their lots. The mitigation will likely consist of a combination of structural elements and remedial grading, as recommended by CSA. The houses that formerly occupied 2126 and 2134 Hillside Drive will not be returned to the lots and will be demolished. Those two lots will remain vacant, and will not be mitigated.

Slope instability which does not have the potential to affect directly the GHAD-accepted homesites, roadways, or other improvements will not be repaired, as provided in Section VI.

The GHAD may maintain, operate, repair and/or replace those portions of surface and subsurface drainage facilities (e.g. concrete v-ditches, storm drain pipes, catch basins, drainage inlets and outlets, manholes, subdrain pipes, subdrain inlets and outlets, etc.) which are not located underneath or within any streets and which do not receive or convey storm water runoff flowing from any streets.

VI. Criteria for GHAD Responsibility

In forming the GHAD and establishing the assessment levels and budgets for the District, it is important to define clearly the limits of the GHAD's responsibilities. The GHAD will accept responsibility for property as described in Section VII of this Plan of Control. However, the intent of this Plan of Control is not to extend the GHAD's responsibilities to every potential situation of slope instability; rather, the following are exclusions from GHAD responsibility:

1. Isolated or Remote Slope Instability

The GHAD shall not have responsibility to monitor, abate, mitigate or control slope instability that does not involve damage to or pose a significant threat to damage site improvements. As used in this Plan of Control, the term "site improvements" means buildings, roads, sidewalks, utilities, geologic stabilization features, or similar improvements.

2. Single Property

The GHAD will not prevent, mitigate, abate or control geologic hazards which are limited in area to a single parcel of property unless the geologic hazard has damaged, or poses a significant threat of damage to site improvements located on other property within the GHAD boundaries, which has been accepted in accordance with Section VII.

3. Geologic Hazards Resulting From Negligence Of Property Owner

The GHAD may, in the general manager's sole discretion, decline to prevent, mitigate, abate or control geologic hazards which occurred or resulted from any negligence of the homeowner and/or the homeowner's contractors, agents or employees in developing, grading, constructing, maintaining or performing or not performing any post-development work on the subject

property. As used in this Plan of Control, the general manager refers to that party which is appointed by the Board of Directors to manage the activities of the GHAD.

4. Property Not Accepted

The GHAD shall not have responsibility to repair damaged site improvements that are situated on a parcel of real property, which the GHAD has not accepted in accordance with Section VII, below. The GHAD, however, may monitor, abate, mitigate or control slope instability on a parcel of real property which (1) the GHAD has not accepted in accordance with Section VII, below, and (2) that is not excluded from GHAD responsibility by paragraphs 1 and 2; provided, however, that GHAD responsibility on such parcel shall be limited to the extent necessary to address damage or a significant threat to damage site improvements which are within a parcel of real property which the GHAD has accepted in accordance with Section VII, below.

5. GHAD Funding Limitations

Initial funding for the GHAD will be provided by the City of San Leandro primarily or exclusively from State and Federal grants. The GHAD shall expend a portion or all of these funds to undertake the initial slope stabilization described herein. Remaining funds, if any, will provide the reserve which will be used to perform the GHAD's on-going activities. If the GHAD's funding is, for any reason, exhausted, reduced or eliminated in the future, the GHAD's services will also be eliminated or diminished accordingly. The GHAD has no responsibility to perform any activities which exceed its funding capacity.

6. GHAD Funding or Reimbursement for Damaged Structures or Site Improvements

In the event a residence or any other structure or private site improvement is damaged or destroyed due to, or as a result of, a geologic hazard, the GHAD may fund, or reimburse the

property owner for, the expenses necessary to repair or replace the damaged or destroyed structure or site improvement. Unless authorized by the Board of Directors, the dollar amount of the GHAD funding or reimbursement may not exceed 10 percent of the costs incurred by the GHAD in preventing, mitigating, abating or controlling the geologic hazard responsible for the damage. In the event the geologic hazard damaged or destroyed a structure or site improvement which violated any provision of the San Leandro Building Code or the San Leandro Ordinance Code at the time of its installation or improvement, the GHAD may decline to provide any funding or reimbursement to the property owner for repair or replacement of the damaged structure or improvement.

VII. Acceptance

1. Activation of Assessment

An annual assessment may be established on all residential parcels in the GHAD, subject to approval by a majority of property owners within the GHAD boundaries. The assessment shall be levied by the GHAD on each individual residential parcel beginning the first fiscal year following such authorization by the property owners. No assessment may be authorized or levied if there is majority protest of property owners, as provided in Article XIIID of the California Constitution (Proposition 218).

2. Annexations to the GHAD

Annexation of properties not currently within the GHAD boundaries must be approved by the GHAD Board of Directors. Prior to annexation approval, the property owner must establish that the future revenue stream to the GHAD will be adequate to support the GHAD activities within the area proposed to be annexed. Additionally, as a condition of annexation, the property owner seeking annexation must contribute to the GHAD reserve fund in an amount to be determined by the general manager, but which shall be based upon the size of the area to be annexed relative to the area of the existing GHAD, and other relevant factors.

VIII. Priority of GHAD Expenditures

Emergency response and scheduled repair expenditures by the GHAD are to be prioritized by the General Manager, utilizing his discretion, based upon available funds and the approved operating budget. When available funds are not sufficient to undertake all of the identified remedial and preventive stabilization measures, the expenditures are to be prioritized as follows, in descending order of priority:

A. Prevention, mitigation, abatement or control of geologic hazards that have either damaged or pose a significant threat of damage to residences, critical underground utilities or paved streets. In the currently-designated GHAD area, the large landslide in the cut slope east of the residences at 2090 to 2150 Hillside Drive will have the highest priority for mitigation with GHAD funds.

B. Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage to ancillary structures, including but not limited to drainage facilities such as v-ditches and catch basins.

C. Prevention, mitigation, abatement or control of geologic hazards existing entirely on slopes and which have neither damaged nor pose a significant threat of damage to any site improvements.

D. Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage limited to loss of landscaping or other similar non-essential amenities.

Geotechnical Techniques for Mitigation of Landslide and Erosion Hazards

The techniques which may be employed by the GHAD to prevent, mitigate, abate, or control geologic hazards include, but are not limited to, the following.

A. Removal of the unstable earth mass.

B. Stabilization (either partial or total) of the landslide by removal and replacement with compacted, drained fill.

C. Construction of structures to retain or divert landslide material or sediment.

D. Construction of erosion control devices such as gabions, riprap, geotextiles, or lined ditches.

E. Placement of drained engineered buttress fill.

F. Placement of subsurface drainage devices; (e.g. underdrains, or horizontal drilled drains).

G. Slope correction (e.g. gradient change, biotechnical stabilization, slope trimming or contouring).

H. Construction of additional surface ditches and/or detention basins, silt fences, sediment traps, or backfill or erosion channels.

Potential landslide and erosion hazards can be mitigated best by controlling soil saturation and water runoff and by maintaining the surface and subsurface drainage system. Maintenance shall be provided for lined surface drainage ditches and drainage terraces including debris benches or drop inlets.

IX. Biotechnical Recommendations for Prevention and Mitigation of Existing or Potential Erosion Hazards

Fill slopes on this project may be expected to be as erodible as the cut slopes in bedrock. Therefore, maintenance of vegetative cover following grading is especially important on all slopes.

Vegetation provides a protective role on soil and exposed rock. It absorbs the impact of raindrops, reduces the velocity of runoff, and retards erosion.

In many instances, adequate erosion protection for slopes can be accomplished solely with carefully selected and placed biological elements (plants) without the use of structures (e.g. brush layering and willow waddling).

In other areas, biotechnical slope protection may involve the use of mechanical elements or structures in combination with biological elements to provide erosion control and help prevent small-scale slope failures. Locally, crib walls, welded-wire walls, gabion walls, rock walls, riprap, and reinforced earth walls used in combination with carefully selected and planted vegetation can provide high quality slope protection. The vegetation may be planted on the slope above a low retaining structure or toe wall, or the interstices of the structure can be planted.

X. Maintenance and Monitoring Schedule

The site inspections should be undertaken a minimum of three times per year. The GHAD budget should provide for four or more inspections in years of heavy rainfall. The inspections should take place in October, prior to the first significant rainfall; mid-winter as necessary during heavy rainfall years; and in early April at the end of the rainy season. The frequency of the inspections should increase depending upon the intensity and recurrence of rainfall. Site inspections should increase sufficiently to provide for mitigation of potential hazards. The GHAD Manager shall keep all available geotechnical reports on file in the records of the GHAD.

- The engineer and/or geologist retained by the District should carry out an inspection of lined surface ditches at least twice a year. One inspection should be in the fall prior to the onset of winter rains. The inspection shall check for sedimentation and cracking or shifting of the concrete-lined ditches. Repairs and maintenance as needed should be undertaken including removal of excess silt or sediment in ditches and patching or replacement of cracked or broken ditches, prior to the beginning of the next rainy season.

- Subsurface drain outlets and horizontal drilled drain outlets, if any, should be checked. Water flowing from these outlets should be measured and recorded during each inspection. The inspections should take place at least twice annually, preferably in the fall and spring. Any suspicious interruption in flow should signal a need to unplug or clean by flushing the affected drain.

- Piezometers to measure ground-water levels, or instruments such as inclinometers or tiltmeters measuring potential slope instability should be monitored quarterly, if installed.

- Inlets, outfalls or trash racks, if used, must be kept free of debris and spillways maintained. It is anticipated that initially at least once every two (2) years, cleanup of vegetation and removal of silt would be in order. Attention should be given to plantings or other obstructions which may interfere with access by power equipment.

- The drainage corridors should be inspected at least twice a year. One inspection should be in the fall prior to the onset of winter rains. A second inspection should be undertaken during the rainy season to monitor potential failures which could imminently threaten or damage site

improvements. The maintenance program should include the monitoring of the subdrain outfalls.

- An annual inspection shall be made by the engineer and/or engineering geologist to assess the effectiveness of the preventive maintenance program and to make recommendations as to which landslide stabilization or erosion control measures should be undertaken in the next fiscal year. Any appropriate site-specific study of landslide or erosion conditions shall be determined at that time. Consultants, if necessary, will be retained to undertake the needed studies. An annual inspection report to the GHAD shall be prepared by the District Engineer and/or engineering geologist.

SELECTED REFERENCES

Association of Bay Area Governments (ABAG), 1981, Manual of Standards for Erosion and Sediment Control Measures.

Cotton, Shires & Associates, Inc., 1999, Geotechnical Investigation, Hillside Drive Slope Stabilization Project, Hillside Slope Failure, San Leandro, California; July 19, 1999; Project No. 3189.

Dibblee, Jr., T.M., 1980, Preliminary Geologic Map of the Las Trampas Ridge Quadrangle, Alameda and Contra Costa Counties, California, U.S.G.S. Open-File Report 80-545, 1:24,000.

Graymer, K.W., et al., 1996, Preliminary Geologic Map Emphasizing Bedrock Formations in Alameda County, California, U.S.G.S. Open File report 96-252.

Radbruch-Hall, D.H., 1974, Map Showing Recently Active Breaks Along the Hayward fault Zone and the Southern Part of the Calaveras fault Zone, California, U.S.G.S. Map I-813, 1:24,000.

Radbruch, D.H., 1969, Areal and Engineering Geology of the Oakland East Quadrangle, California, U.S.G.S. Map GQ-769, 1:24,000.

Robinson, G.D., 1956, Geology of the Hayward Quadrangle, California, U.S.G.S. Map GQ 88, 1:24,000.

LIST OF FIGURES

LEGAL DESCRIPTION

All that real property situate in the City of San Leandro, County of Alameda, State of Califronia, described as follows:

Lots 16, 17, and *18* of *TRACT 1822*, filed October 4, 1956, in Book 37 of Maps, at Page 77, *PARCEL 2* of *PARCEL MAP PM 5845*, filed June 16, 1993, in Book 208 of Parcel Maps, at Page 5, *Lots 23, 24, 25, 26, 27, 28, 29,* and *30* of *TRACT 2712*, filed November 12, 1965, in Book 52 of Maps, at Page 13, and *Lots 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27,* and *28* of *TRACT 3497*, filed October 3, 1973, in Book 81 of Maps, at Page 37, further described as follows:

Beginning at the southwesterly corner of said *Lot 16* of *TRACT 1822*; thence along the southerly boundary line of said *Lots 16, 17,* and *18* of *TRACT 1822* the following five courses: North 66°02'25" East, 130.61 feet to the beginning of a curve concave to the northwest having a radius of 200.00 feet; thence northeasterly 80.75 feet along said curve through a central angle of 23°08'00"; thence North 42°54'25" East, 24.76 feet to the beginning of a curve concave to the northwest having a radius of 40.00 feet; thence northeasterly 20.21 feet along said curve to the beginning of a reverse curve concave to the southeast having a radius of 40.00 feet , a radial through said beginning of reverse curve bears South 76°02'53" East; thence northeasterly 49.12 feet along said curve through a central angle of 70°21'53"; thence along the boundary line of said *PARCEL 2* the following three courses: easterly and southeasterly 35.00 feet along the prolongation of last said curve through a central angle of 50°08'02"; thence on a non-tangent line North 5°18'45" East, 47.02 feet; thence North 33°57'33" West, 173.48 feet to a point a point on the southerly line of *Lot 31* of said *TRACT 2712*; thence along last said line North 80°22'00" West, 7.98 feet to the southeasterly corner of said *Lot 30* of *TRACT 2712*; thence along the boundary line of said *Lots 30, 29, 28, 27, 26, 25, 24*, and *23* of said *TRACT 2712* the following eleven courses: North 13°37'19" East, 192.978 feet to a point on a non-tangent curve concave to the northeast having a radius of 244.00 feet and to which beginning a radial line bears South 13°37'19" West; thence westerly 30.001 feet along said curve through a central angle of 7°02'41"; thence North 69°20'00" West, 245.000 feet to the beginning of a curve concave to the northeast having a radius of 64.452 feet; thence westerly, northwesterly, and northerly 106.490 feet along said through a central angle of 94°40'00"; thence North 25°20'00" East, 94.000 feet to the beginning of a curve concave to the southwest having a radius of 20.000 feet; thence northwesterly and westerly 31.416 feet along said curve through a central angle of 90°00'00"; thence North 64°40'00" West, 245.000 feet to the beginning of a curve to the south having a radius of 40.000 feet; thence westerly and southwesterly 32.510 feet along said curve to the beginning of a reverse curve concave to the northeast having a radius of 40.000 feet, a radial line through said beginning of reverse curve bears South 21°14'02" East; thence westerly and northwesterly 96.677 feet along said curve through a central angle of 138°28'45"; thence on a non-tangent line North 62°45'17" West, 173.841 feet; thence South 28°05'17" West, 152.347 feet to the most northerly corner of said *Lot 15* of *TRACT 3497*; thence along the boundary line of said *Lots 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27,* and *28* of said *TRACT 3497* the following nine courses: South 28°05'17" West, 116.44 feet; thence South 9°48'58" East, 233.952 feet to the beginning of a non-tangent curve concave to the south having a radius of 50.000 feet

and to which beginning a radial line bears North 9°48'58" West; thence easterly and southeasterly 45.000 feet along said curve through a central angle of 51°33'58"; thence South 48°15'00" East, 382.000 feet to the beginning of a curve concave to the west having a radius of 230.000 feet; thence southeasterly 238.267 feet along said curve to the beginning of a reverse curve concave to the east having a radius of 100.000 feet, a radial line through said beginning of reverse curve bears North 78°53'41" West; thence southerly 61.200 feet along said curve through a central angle of 35°03'54"; thence South 23°57'35" East, 107.697 feet to the beginning of a curve concave to the northeast having a radius of 20.000 feet; thence southeasterly and easterly 31.416 feet along said curve through a central angle of 90°00'00"; thence North 66°02'25" East, 118.000 feet to the point of beginning.

Containing an area of 11.10 acres, more or less.

Note: This legal description is compiled from record data depicted on the filed maps referenced herein. Record data does not mathematically close.

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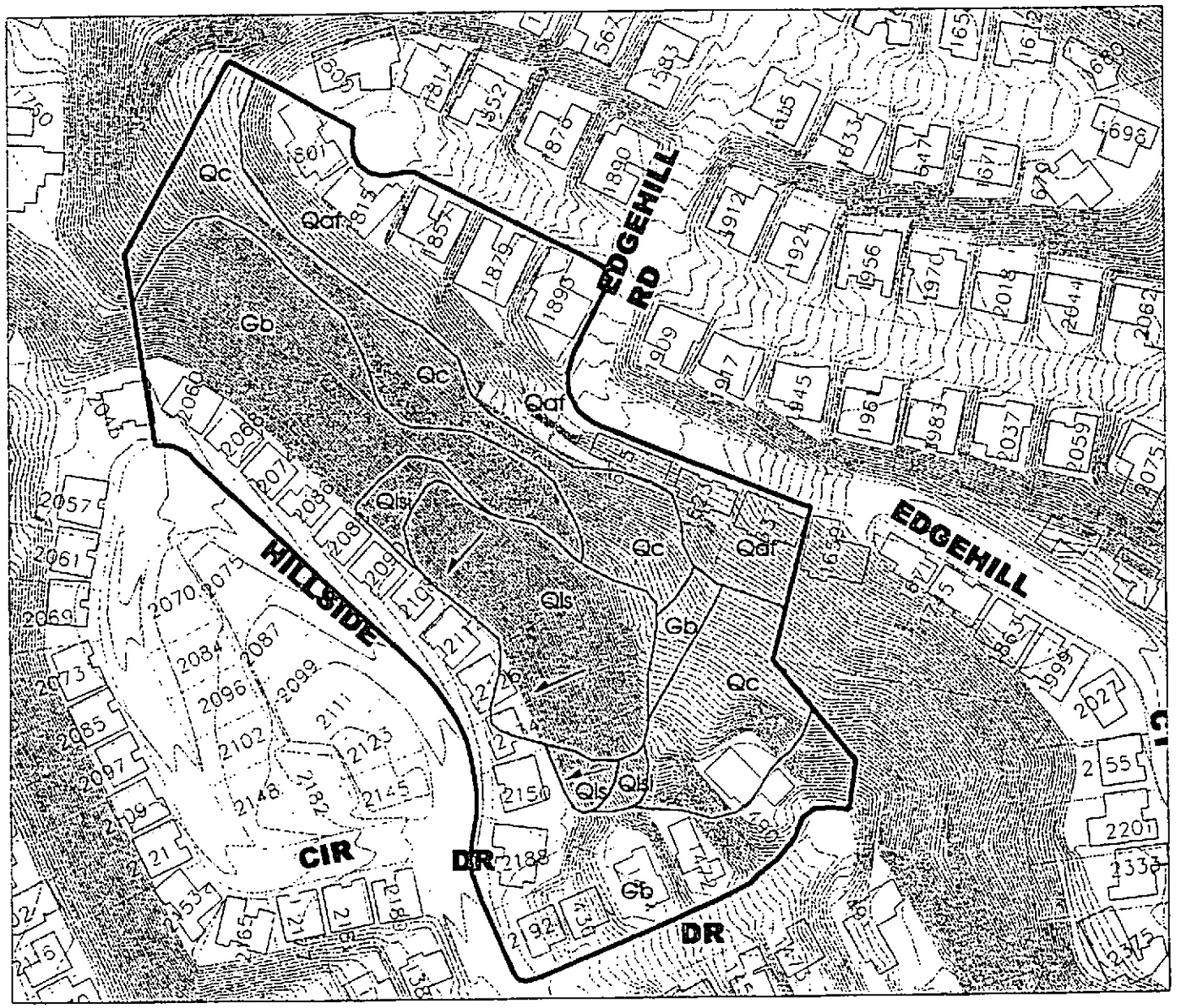
ENGEO INCORPORATED

DISTRICT BOUNDARY
HILLSIDE GEOLOGIC HAZARD ABATEMENT DISTRICT
SAN LEANDRO, CALIFORNIA

PROJECT NO.: 4867.1.002.01
DATE: OCTOBER 2000
DRAWN BY: CHECKED BY:

FIGURE NO. 1



EXPLANATION

Qaf Manmade Fill

Qc Colluvium

Qls Landslide

Qlsl Incipient Landslide

Gb Gabbro

N

0 FEET 200

0 METERS 100

BASE MAP SOURCE: City of San Leandro GEOLOGIC MAP SOURCE: Cotton, Shires & Associates, Inc.

ENGEO INCORPORATED

GEOLOGIC MAP

HILLSIDE GEOLOGIC HAZARD ABATEMENT DISTRICT

SAN LEANDRO, CALIFORNIA

PROJECT NO.: 4867.1.002.01

DATE: OCTOBER 2000

DRAWN BY: CHECKED BY:

FIGURE NO. 2