PLAN OF CONTROL
FOR
SCHAEFER RANCH
GEOLOGIC HAZARD ABATEMENT DISTRICT
(GHAD)
DUBLIN, CALIFORNIA

SUBMITTED

TO

SCHAEFER RANCH, LLC

PREPARED

BY

ENGEO INCORPORATED

PROJECT NO. 4748.1.500.01

NOVEMBER 1, 2006

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SELECTED REFERENCES

I. Authority and Scope

The Schaefer Ranch 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 provide a framework for the prevention, mitigation, abatement, and control of identified or potential geologic hazards. 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 boundary of Schaefer Ranch (Tract 6765), the legal description of the property, its parcel designations, and the proposed boundary of the GHAD are shown in Exhibits A and B and Plate I.

II. Background

The Schaefer Ranch project is located on the north side of Highway 580 in west Dublin, California. The east side of the property borders open space for an adjacent subdivision and East Bay Regional Park District land. The northern side of the property borders East Bay Regional Park District land and the Machado Property. The west side of the property borders the DaVilla/Eden Canyon Family Partnership Property. Access to the site is currently provided via Schaefer Ranch Road through an existing freeway underpass. The site is approximately 445 acres in area and is bordered on the west and north by undeveloped land (the "GHAD Property"). The GHAD Property includes the area shown in Exhibit B.

Pregrading Site Conditions

The GHAD Property is located in an area dominated by a high ridgeline that reaches elevations of over 1,100 feet (Plate 2). In plan view, the crest of the ridge forms a "V" shape, open to the west. The high point on the property, Donlan Point at elevation 1,138 feet, occurs at the apex of the "V", at the east end of the high ridgeline. East of Donlan Point, a single ridgeline continues to the east at elevations of 750 to 900 feet. South of the ridge, the property slopes to Highway 580 at elevations of 600 to 700 feet. The center of the high ridge is drained by Marshall Canyon and Kelley Canyon. Wagon Wheel Canyon flows from a saddle south of the main ridge. All three canyons drain northwest into undeveloped lands. The vegetation on site currently consists of open grassland in upland areas and south-facing slopes, local brush and tree cover in the canyon bottoms and some lower portions of north-facing slopes.

Proposed Development

The Preliminary Grading Plan for the subject property, developed by P/A Design Associates currently shows single-family residential units, interior subdivision streets, a leisure park, a sports park, three detention basins, three water quality basins, a water tank, an East Bay Regional Park District trailhead, staging area and associated trails and an approximately 5.7-acre parcel at

the site. A Geotechnical Investigation dated October 1997 was completed for the Schaefer Ranch site by Alan Kropp and Associates (AKA). ENGEO Incorporated performed a supplemental exploration at the Schaefer Ranch site and provided supplemental geotechnical recommendations in a report dated January 29, 2004, as well as subsequent documents listed in the references section.

Grading plans for the subject site indicate that the majority of planned residential units will occupy cut areas along the west-northwest- and northwest-trending ridgelines at the site. Proposed residential units will also occupy building pads in fill areas in the southwest portion of the site west of proposed Schaefer Ranch Road and within the west and northwest portions of the site. In addition to the proposed residential development, a westward extension of Dublin Boulevard is planned at the site.

Along the uphill side of the Dublin Boulevard Extension, 2:1 (horizontal: vertical) slopes up to 180 feet in vertical height are planned. East of Station 30+50, the 2:1 slopes are planned to be rebuilt as engineered fill slopes. West of Station 30+50, portions of the 2:1 slopes outside of mapped landslide areas are not planned to be rebuilt. Landslides within the grading limits along Dublin Boulevard are planned to be completely removed and replaced with drained engineered fill. Benches with concrete-lined ditches and stormdrain systems are planned on graded slopes steeper than 3:1.

According to grading plans by P/A Design Resources, deep fill areas are planned at the southwest and northwest portions of the Schaefer Ranch Project site. Engineered fill within the above-mentioned portions of the site are shown to extend up to approximately 150 feet above original grades in some places. ENGEO provided recommendations for the monitoring of deep fills in letters dated June 26, 2005, and August 17, 2005. Settlement instrumentation will be provided in the deep fill areas at the southwestern portion of the site west of Schaefer Ranch Road and in the deep fill area in the northwest portion of the site. The developer will provide for monitoring of the settlement instruments during grading as well as during the residential construction period.

Open Space

Project Open Space includes Parcels A1, B1, C1, E, F, G, H, L, P, R, S, U and V as shown in Open Space Exhibit. Title to these parcels will be conveyed to the GHAD approximately three years after the recording of the first final map affecting the GHAD Property. Since long-term maintenance and stability of the GHAD Property will protect the open space, which is an amenity that will benefit all of the current and future property owners, the funding for the GHAD's activities will be shared by all current and future property owners within the GHAD's boundaries. All such activities shall be consistent with this Plan of Control.

According to the GHAD Boundary Exhibit prepared by PA Design Resources (August 16, 2006) approximately 66 acres of open space designated as Parcel A has been deeded to the East Bay Regional Park District and will therefore be outside of the GHAD's boundaries, although the GHAD reserves the right to enter this property at its discretion in conjunction with maintenance and repairs on the GHAD property (see attached Exhibit B).

GHAD Responsibilities

The GHAD will mitigate, prevent, abate or repair landslide or erosion hazards that could directly affect property within the GHAD boundary, as necessary to implement this Plan of Control. The GHAD will also assume open-space management responsibilities that are required for the Schaefer Ranch Project. These responsibilities will include vegetation management, erosion control, vegetation removal (fire suppression), and selected other maintenance associated with open space. In addition, the responsibility of the GHAD includes maintenance, repair and replacement of detention basins (within the GHAD Property), vegetation control, armoring of channels and desilting of detention basins.

The GHAD's responsibilities will include but may not be limited to monitoring and maintenance for the following as appropriate.

- Detention Basins and Water Quality Basins on Parcels “R”, “G” and “V”, including structures, vegetation and sediment removal.

- Maintenance and repair of EVA and access Roads.

- Erosion repairs.

- Revegetation and vegetation control, including fire break mowing, weeding and additional hydroseeding as deemed necessary.

- Sediment removal from concrete structures (applies only to open-space catch basins, field inlets, V-ditches and stormdrain pipes).

- Slope stabilization (includes minor landsliding and debris bench clearing).

- Subdrain outfall maintenance.

- Open-space stormdrain pipe and V-ditch replacement.

In addition, the GHAD will have maintenance, monitoring and repair responsibilities for slopes, which will include natural, reconstructed or partially reconstructed landslides as indicated within the referenced ENGEO reports and discussed below (Section V).

III. Site Geology

Geologic Setting

The site is located within the Coast Ranges geologic province of California, a series of northwest-trending ridges and valleys. Bedrock in the province has been folded and faulted during regional uplift beginning in the Pliocene period, roughly 4 million years before present. More specifically, Schaefer Ranch is located in the central East Bay Hills, an area that is characterized by folded and faulted Cretaceous to Pliocene-age sedimentary rocks (Plate 2). The eastern and western geologic boundaries of the East Bay Hills are formed by the active Calaveras and Hayward Faults.

Site Geology

Regional geologic maps of the area have been prepared by Dibblee (1980), Crane (1988) and Graymer (1996). The most recent regional map prepared by Graymer indicates that the site is underlain by late and middle Miocene rocks of the Briones Formation and undivided middle Miocene marine rocks of the Monterey Group including the Rodeo Shale, Hambre Sandstone, Tice Shale and Oursan Sandstone. A more extensive discussion of the site geology is included as Appendix B of this Plan of Control.

IV. Geologic Hazards

Geologic hazards identified for the site in the AKA and ENGEO reports include the following items:

- Lateral stability or slope stability
- Erosion and sedimentation
- Seismically-induced ground shaking

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. 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 from its original position 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.

According to the geotechnical reports for the project, approximately 59 landslides have been identified on the subject site. The geologic map showing the location of each of the landslides is included as Plate 2. General mitigation measures for the mapped landslides are to be performed in accordance with the approved remedial grading plans for the project. The proposed mitigation measures identified in the geotechnical report and the remedial grading plans include complete removal of the landslide and replacement with drained engineered fill; removal and replacement of the lower portion of the landslide and replacement with a drained engineered fill buttress; removal and replacement of the upper portion of the landslide within the grading limits; and providing a keyway along the edge of the grading limits. According to the geotechnical report for the project, landslides that are completely outside of the proposed grading limits and pose no potential risk to the proposed development will not be mitigated and will be left in-place. As-built remedial grading plans are to be prepared following grading at the site to show areas and locations where corrective grading was performed.

Slope failures are also often triggered by increased pore water pressure due to the infiltration of rainwater. The resulting decrease of shear resistance (internal resistance to deformation by shearing) can cause the slope to move. The level of the groundwater table varies with the amount of rainfall for the area. If rainfall is higher than average during the winter season, the water table will be higher than average on a hillslope and groundwater pressures may become high. Under these conditions, hillside movement can be activated.

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 downslope movement of saturated ground. Colluvium refers to the thicker mantle of loose soil and weathered bedrock debris that progresses down hillsides by creep. Colluvial deposits are typically the result of soil creep and may be in a weak, unconsolidated state, making them susceptible to landsliding if undercut. Colluvium is generally approximately 8 to 15 feet in

thickness. Landslides and colluvial deposits located within open space areas are natural landforms that do not require mitigation except where they affect man-made improvements. Potential mitigation and repair measures for GHAD areas near development are discussed in Section VII.

Erosion and Sedimentation

The District shall also be concerned with erosion and sedimentation in open space or affecting established lots or improvements. 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 in 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 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.

Seismically Induced Ground Shaking

As identified in the geotechnical reports, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. Seismic slope stability has been considered in the ENGEO remedial grading plans for engineered fill slopes at the site. On unimproved open space slopes, seismically generated slope failures may occur in open-space areas outside the development limits.

V. Criteria for GHAD Responsibility

Prevention, Mitigation, Abatement and/or Control of Geologic Hazards

Subject to the following exceptions, the primary mission of the GHAD shall be the prevention, mitigation, abatement and/or control of geologic hazards within its boundaries that have damaged, or that pose a significant threat of damage to site improvements within the GHAD boundaries. As used herein, the term "site improvements" means buildings and outbuildings, roads, sidewalks, utilities and associated facilities/structures and geologic stabilization features.

Exceptions

The intent of this Plan of Control is not to extend the GHAD's responsibilities to every potential situation of slope instability. Specifically, the following are excluded from the GHAD's responsibilities:

Isolated or Remote Slope Instability

The GHAD shall not have responsibility to monitor, abate, mitigate or control isolated or remote slope instability that does not involve damage to or pose a significant threat to damage (a) site improvements or (b) off-site improvements if the threat of damage or damage is not caused by property or site improvements for which the GHAD is responsible.

Single Property

The GHAD will not prevent, mitigate, abate or control geologic hazards which are limited in area to a single parcel of property not owned by the GHAD unless the geologic hazard has damaged, or poses a significant threat of damage to site improvements located on other property within the GHAD boundaries. This exclusion does not apply to geologic hazards existing on common area property owned by the HOA or within the GHAD-owned Property.

Geologic Hazards Resulting From Negligence of Property Owner

The GHAD may, in the GHAD 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, investigating, grading, constructing, maintaining or performing or not performing any post-development work on the subject property.

Vertical Movement or Creep Due to Shrink Swell or Settlement

Vertical movement due to shrink-swell of expansive soils or settlement of fills is expected at the site as with many residential developments in the area. Damage to site improvements resulting from shrink swell or settlement of fills is not the responsibility of the GHAD.

Protected Wildlife Habitat

The GHAD will not prevent, mitigate, abate or control isolated geologic hazards which are limited to mitigation areas and/or protected wildlife habitat unless the geologic hazard has damaged, or poses a significant threat of damage, to site improvements located on property within the GHAD boundaries.

Property Not Accepted

The GHAD shall not have responsibility to repair damaged site improvements which are situated on a parcel of real property that the GHAD has not accepted in accordance with Section VI, below.

Damage to GHAD Accepted Property from Landslide Originating on Property not Accepted by GHAD

The GHAD 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 VI, below, and (2) that is not excluded from GHAD responsibility by Paragraphs 1 and 2; provided 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 VI, below.

GHAD Funding or Reimbursement for Damaged or Destroyed Structures or Site Improvements

In the event that improvements (including residences, landscape, hardscape, or any other structure) are 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, site improvement or landscaping. Unless authorized by the Board of Directors, the dollar amount of the GHAD funding or reimbursement may not exceed an aggregate of ten percent (10%) of the costs incurred by the GHAD in preventing, mitigating, abating or controlling the geologic hazard responsible for the damage.

VI. Acceptance

Activation of Assessment

An annual assessment shall be fully authorized, prior to recordation of the Final Map in accordance with the Conditions of Approval, on all residential parcels in the GHAD and may be increased as provided by law to achieve the purposes of the GHAD and this Plan of Control. The assessment shall be levied by the GHAD on each individual residential parcel beginning the first fiscal year following issuance of a building permit for that parcel.

Responsibility for GHAD Activities

Except as provided for in Section V, the party that, on the date the Final Map within the boundaries of the GHAD is recorded in the Official Records of Alameda County, owns the developable parcels shown on the Final Map shall have the responsibility to perform all the activities of the GHAD on property within the Final Map prior to transfer of such property to the GHAD. Pursuant to this Plan of Control, such responsibility shall automatically transfer to the GHAD at 9:00 a.m. on the day exactly three years after the completion and city approval of the grading for the Schaefer Ranch Project, or exactly three years, after the first occupancy permit for the Schaefer Ranch Project is issued by the City, whichever is later, and provided the improvements required by the Conditions of Approval for the Schaefer Ranch Project have been accepted. This transfer date may be extended at the sole discretion of the owners of the GHAD Property to be transferred, provided that the owners continue to perform the GHAD's activities and that the assessments continue to be levied during the extension period and that notice of such extension is delivered to the GHAD manager at least 30 days prior to the transfer date. The approximate three-year period between the levying of the GHAD assessment and the GHAD transfer will allow the GHAD to accumulate reserve funds without incurring significant expenses.

VII. Schaefer Ranch GHAD Management Plan

The GHAD will, subject to the criteria outlined in Section V, monitor, mitigate and repair landslide or erosion hazards within the GHAD boundaries. Subject to the same criteria, the GHAD will also monitor, maintain, and repair the following within the GHAD boundary.

- Detention Basins and Water Quality Basins on Parcels "R", "G" and "V", including structures, vegetation and sediment removal.
- Maintenance and repair of EVA and access Roads.
- Erosion repairs.
- Revegetation and vegetation control, including fire break mowing, weeding and additional hydroseeding as deemed necessary.
- Sediment removal from concrete structures (applies only to open-space catch basins, field inlets, V-ditches and stormdrain pipes).
- Slope stabilization (includes minor landsliding and debris bench clearing).
- Subdrain outfall maintenance.
- Open-space stormdrain pipe and V-ditch replacement.
- Any other duties that the GHAD manager deems necessary for the management of areas within the GHAD boundaries.

The GHAD will be authorized to maintain the geologic stabilization features (e.g. ditches, benches, walls, etc.) in the open space, and the unimproved areas, including the hillside slopes extending uphill from debris benches and common areas outside of the private lot boundaries except where noted in Section X. The GHAD's maintenance responsibilities include prevention, abatement, and control of landslide and erosion hazards within the subdivision open space and hillsides, as provided in Section V.

General maintenance of the surface drainage improvements in the open space and on the hillsides, such as the concrete V-ditches, will be the GHAD's responsibility. The GHAD is also responsible

for general maintenance of the stormdrain inlets and outlets in open space as well as the subdrain outlets. Potential geologic hazards such as landslides and slope erosion within the open space, including the unimproved hillsides, shall be the responsibility of the GHAD in accordance with Section V of this report. Clearing of fire breaks and general maintenance of the open space (other than hazard abatement) will be performed by the GHAD.

Landslide Mitigation for Existing Landslides and Erosion Features

For existing landslide areas the following mitigation measures have been proposed within the geotechnical investigation reports. General landslide mitigation measures and potential GHAD maintenance and monitoring activities are shown below.

Landslide Designations	Proposed Corrective Measures	Potential GHAD Maintenance or Monitoring Activities
B-1	Complete removal	Routine observation during periodic site monitoring events.
B-2	Remove and replace lower portion of landslide underlying improvements, Provide intervening deposition area	Upslope portions of Bedrock Landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for corrective work in future if landslide debris movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
B-3	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
B-4	Complete removal	Routine observation during periodic site monitoring events.
B-5	Complete removal	Routine observation during periodic site monitoring events.
B-6	Complete removal	Routine observation during periodic site monitoring events.
B-7	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-1	Complete removal	Routine observation during periodic site monitoring events.
L-2	Complete removal	Routine observation during periodic site monitoring events.
L-3	Removal of the upper portion of the landslide within grading limits	Lower portion of landslide within open space area and outside of grading limits to remain. Routine observation during periodic site monitoring events.
L-4	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.

Landslide Designations	Proposed Corrective Measures	Potential GHAD Maintenance or Monitoring Activities
L-5	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-6	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-7	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-8	Removal of the lower portion of the landslide within cut slope rebuild area.	Shallow upslope margins of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed on to benches of rebuilt slope or shallow movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
L-9	Remove and replace lower portion of landslide underlying improvements, Provide intervening deposition area	Shallow upslope margins of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed into intervening debris deposition area. See Section VII for potential landslide mitigation techniques.
L-10	Complete removal	Routine observation during periodic site monitoring events.
L-11	Complete removal	Routine observation during periodic site monitoring events.
L-12	Remove and replace more significant lower portion of landslide underlying improvements, Provide intervening deposition area	Shallow upslope portion of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed into intervening debris deposition area. See Section VII for potential landslide mitigation techniques.
L-13	Remove and replace lower portion of landslide underlying improvements, Provide intervening deposition area	Upslope portion of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed into intervening debris deposition area. See Section VII for potential landslide mitigation techniques.
L-14	Remove and replace lower portion of landslide underlying improvements, Provide intervening deposition area	Upslope portion of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed into intervening debris deposition area. See Section VII for potential landslide mitigation techniques.

Landslide Designations	Proposed Corrective Measures	Potential GHAD Maintenance or Monitoring Activities
L-15	Removal of the more significant lower portion of the landslide within cut slope rebuild area.	Shallow upslope margins of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed on to benches of rebuilt slope or shallow movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
L-16	Removal of the more significant lower portion of the landslide within cut slope rebuild area.	Shallow upslope margins of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed on to benches of rebuilt slope or shallow movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
L-17	Removal of the more significant lower portion of the landslide within cut slope rebuild area.	Shallow upslope margins of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed on to benches of rebuilt slope or shallow movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
L-18	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-19	Removal of the upper portion of the landslide within grading limits	Lower portion of landslide within open space area and outside of grading limits to remain. Routine observation during periodic site monitoring events.
L-20	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-21	Complete removal	Routine observation during periodic site monitoring events.
L-22	Complete removal	Routine observation during periodic site monitoring events.
L-23	Complete removal	Routine observation during periodic site monitoring events.
L-24	Complete removal	Routine observation during periodic site monitoring events.
L-25	Complete removal	Routine observation during periodic site monitoring events.
L-26	Complete removal	Routine observation during periodic site monitoring events.
L-27	Complete removal	Routine observation during periodic site monitoring events.
L-28	Complete removal	Routine observation during periodic site monitoring events.
L-29	Complete removal	Routine observation during periodic site monitoring events.
L-30	Complete removal	Routine observation during periodic site monitoring events.

Landslide Designations	Proposed Corrective Measures	Potential GHAD Maintenance or Monitoring Activities
L-31	Remove and Replace Portions Underlying Improvements, Construct Buttress and Debris Catchment Bench	Upslope portion of landslide above the repair to remain. Observation of this area during periodic site monitoring events. Higher potential for maintenance or corrective work in future if landslide debris is shed on to benches of rebuilt slope or shallow movement impacts rebuilt portion of slope or site improvements. See Section VII for potential landslide mitigation techniques.
L-32	Complete removal	Routine observation during periodic site monitoring events.
L-33	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-34	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-35	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-36	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-37	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-38	Remove and Replace Portions Underlying Improvements, Construct Buttress Key at Upper Landslide Limits.	Lower portion of landslide within open space area and outside of grading limits to remain. Observation of this area during periodic site monitoring events. Higher potential for corrective work in future if downslope movement of landslide leads to regression of headscarp into areas of site improvements. See Section VII for potential landslide mitigation techniques.
L-39	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-40	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-41	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-42	None Required Outside of grading limits and within open space area	Routine observation during periodic site monitoring events.
L-43	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.

Landslide Designations	Proposed Corrective Measures	Potential GHAD Maintenance or Monitoring Activities
L-44	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-45	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-46	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-47	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-48	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-49	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-50	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-51	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.
L-52	None Required Outside of grading limits and within open space area	Landslide to remain in place. Routine observation during periodic site monitoring events.

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 necessarily limited to:

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.

VIII. Priority of GHAD Expenditures

Emergency response and scheduled repair expenditures by the GHAD are to be assigned a priority at the discretion of the GHAD manager based upon available funds and the approved operating budget. GHAD expenditures shall 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.

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 the detention basins, or community buildings.

C. Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage to open space amenities including vegetation that part of the irrigated, maintained, ornamental landscaping.

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

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

Maintenance of vegetative cover is important on all slopes cut or fill. Vegetation provides a protective role on soil and exposed rock. It absorbs the impact of raindrops, reduces the velocity of runoff, and retards erosion.

The GHAD may plant carefully selected and placed biological elements (plants). In addition, if the GHAD manager determines that it is necessary, biotechnical slope protection may also 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

Geologic features and GHAD maintained facilities should be inspected by GHAD staff or GHAD-assigned consultants as presented below. The annual budget should be calculated so that inspections will be scheduled to occur two times per year and as necessary after heavy rainfall events that is defined as greater than 1 inch of rainfall in a 12-hour period. The inspections should be scheduled to take place in October, prior to the first significant rainfall; mid-winter as necessary during heavy rainfall years or events; and in early April, at the end of the rainy season. The frequency of the inspections should be increased in years of higher than average rainfall intensity and recurrence. The timing, frequency and other details regarding such maintenance, inspection and similar activities will be set forth in the Management Plan prepared by the GHAD manager.

It is our understanding that in some instances slopes, benches and drainage structures which are to be maintained by the GHAD shall extend across private parcels. Access for maintenance and repair of these features shall be granted to the GHAD through easements established in favor of the GHAD.

The GHAD shall obtain copies of geologic or geotechnical exploration reports related to site development and keep these reports on file in the records of the GHAD. In addition, copies of any earthwork-related testing and observation reports that will be finalized at the completion of grading, when as-built drawings are available, shall be maintained as part of the GHAD records.

Following are guidelines for a monitoring plan. The actual scope and frequency of monitoring events shall be at the discretion of the GHAD manager.

- The General Manager's engineer and/or geologist should inspect the lined surface ditches on a regular schedule. If possible, inspections should be scheduled twice each year, budget permitting. One inspection should be in the fall prior to the onset of winter rains. The inspector should check for sedimentation, cracking or shifting of the concrete-lined ditches. Repairs and maintenance should be performed on a regular schedule. Excess silt or sediment

in ditches should be removed and cracked or broken ditches should be patched or repaired as required prior to the beginning of the next rainy season.

- Subsurface drain outlets and horizontal drilled drain outlets, if any, should be inspected on a regular basis. Water flowing from these outlets should be measured and recorded during each inspection. If possible, inspections should be scheduled twice each year, preferably in the fall and spring. Any suspicious interruption in flow should signal a need to unplug or clean the affected drain.

- Inlets, outfalls or trash racks, if used, must be kept free of debris and spillways maintained. Attention should be given to plantings or other obstructions which may interfere with access by power equipment.

The detention basins and water quality ponds on Parcels "R", "G" and "V" should be monitored 4 times each year, as appropriate. The monitoring schedule should occur in January, April, October, and as necessary during heavy rainfall events. A more detailed schedule of monitoring items and sample monitoring report forms are included in the detention basin monitoring and maintenance section presented in Appendix A.

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 or erosion 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 shall be prepared by the GHAD Engineer and/or engineering geologist for the GHAD. Distribution of the annual report along with the budget information shall include City of Dublin Public Works Director.

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ENGEO Inc., 2004, Supplemental Geotechnical Recommendations, Schaefer Ranch Project, Dublin, California, dated January 29, 2004, Project No.4748.1.001.01

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ENGEO Inc., 2005, Recommendations for Settlement Monitoring of Planned Deep Fill Areas, Schaefer Ranch Project, Dublin, California, dated June 26, 2005, Project No.4748.1.001.01

ENGEO Inc., 2005, Recommendations for Settlement Monitoring of Planned Deep Fill Areas, Schaefer Ranch Project, Dublin, California, dated August 17, 2005, Project No.4748.1.001.01

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Federal Emergency Management Agency, 1982, National Flood Insurance Program, Flood Insurance Rate Map (FIRM), Panel Number 065048 0025 B.

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Unruh, 2000, Characterization of Blind Seismogenic Sources in the Mt. Diablo-Livermore Region, San Francisco Bay Area, California: Final Technical Report by William Lettis & Associates for the U. S. Geologic Survey National Earthquake Hazards Reduction Program.

Wagner, J. R., 1978, Late Cenozoic History of the Coast Ranges East of San Francisco Bay, Ph.D. Dissertation, University of California, Berkeley.

Working Group on California Earthquake Probabilities, 1999, Earthquake Probabilities in the San Francisco Bay Region: 2000 to 2030 – A Summary of Findings: USGS Open-File Report 99-517.

EXHIBIT A

P/A Design Resources

Legal Description

4748.1.500.01
November 1, 2006

EXHIBIT "A"
GHAD
LEGAL DESCRIPTION

ALL THAT REAL PROPERTY SITUATE IN THE COUNTY OF ALAMEDA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

A PORTION OF SECTIONS 3 AND 4, TOWNSHIP 3 SOUTH, RANGE 1 WEST, MOUNT DIABLO BASE AND MERIDAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 4; THENCE ALONG THE NORTH SECTION LINE OF SAID SECTION 4, SOUTH 89°29'04" EAST 2594.67 FEET TO THE NORTH ¼ CORNER OF SAID SECTION 4; THENCE CONTINUEING ALONG SAID NORTH SECTION LINE SOUTH 89°33'52" EAST 1715.15 FEET; THENCE ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS SOUTH 79°06'33" EAST, CONCAVE TO THE EAST, HAVING A RADIUS OF 172.50 FEET, THROUGH A CENTRAL ANGLE OF 59°27'40", AN ARC LENGTH OF 179.02 FEET; THENCE SOUTH 48°34'13" EAST 145.11 FEET; THENCE ALONG THE ARC OF A CURVE, CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 237.50 FEET, THROUGH A CENTRAL ANGLE OF 38°35'04", AN ARC LENGTH OF 159.94 FEET; THENCE SOUTH 09°59'09" EAST 35.93 FEET; THENCE ALONG THE ARC OF A CURVE CONCAVE TO THE WEST, HAVING A RADIUS OF 237.50 FEET, THROUGH A CENTRAL ANGLE OF 26°18'25", AN ARC LENGTH OF 109.05 FEET; THENCE SOUTH 16°19'16" WEST 108.23 FEET; THENCE SOUTH 73°40'44" EAST 25.00 FEET; THENCE SOUTH 41°19'00" EAST 438.12 FEET; THENCE SOUTH 32°04'20" EAST 249.89 FEET; THENCE SOUTH 18°05'49" EAST 497.44 FEET; THENCE SOUTH 02°20'33" EAST 502.81 FEET; THENCE SOUTH 18°35'08" EAST 176.93 FEET; THENCE SOUTH 00°34'07" WEST 178.88 FEET; THENCE SOUTH 19°09'21" WEST 338.98 FEET; THENCE SOUTH 84°55'54" WEST 227.56 FEET; THENCE SOUTH 05°04'06" EAST 174.32 FEET; THENCE SOUTH 15°29'10" WEST 205.73 FEET; THENCE NORTH 89°42'48" EAST 816.74 FEET; THENCE SOUTH 72°27'42" EAST 573.68 FEET; THENCE SOUTH 76°44'06" EAST 299.82 FEET; THENCE NORTH 86°01'31" EAST 565.57 FEET; THENCE SOUTH 90°00'00" EAST 118.45 FEET; THENCE NORTH 52°15'21" EAST 238.87 FEET; THENCE SOUTH 80°23'31" EAST 145.72 FEET; THENCE SOUTH 57°59'05" EAST 338.94 FEET; THENCE SOUTH 86°40'56" EAST 324.50 FEET; THENCE SOUTH 64°23'41" EAST 479.65 FEET; THENCE ALONG THE ARC OF A NON-TANGENT CURVE , THE RADIUS POINT OF WHICH BEARS NORTH 69°00'53" EAST, CONCAVE TO THE NORTHEAST, HAVING A RADIUS OF 559.94 FEET, THROUGH A CENTRAL ANGLE OF 16°17'59", AN ARC LENGTH OF 159.29 FEET; THENCE SOUTH 37°17'06" EAST 53.18 FEET; THENCE SOUTH 52°46'22" WEST 54.55 FEET; THENCE SOUTH 62°26'35" EAST 64.98 FEET; THENCE ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS NORTH

01°24’28” EAST, CONCAVE TO THE NORTH, HAVING A RADIUS OF 450.00 FEET, THROUGH A CENTRAL ANGLE OF 11°06’29”, AN ARC LENGTH OF 87.24 FEET; THENCE NORTH 77°29’03” WEST 57.82 FEET; THENCE ALONG THE ARC OF A CURVE , CONCAVE TO THE SOUTH, HAVING A RADIUS OF 1175.00 FEET, THROUGH A CENTRAL ANGLE OF 16°41’54”, AN ARC LENGTH OF 342.44 FEET, TO A POINT OF NON-TANGENCY, THE RADIUS POINT OF WHICH BEARS SOUTH 04°10’57” EAST; THENCE SOUTH 24°46’42” WEST 41.26 FEET; THENCE SOUTH 79°18’27” WEST 36.60 FEET; THENCE NORTH 34°14’51” WEST 45.12 FEET; THENCE SOUTH 84°49’07” WEST 386.53 FEET; THENCE ALONG THE ARC OF A CURVE, CONCAVE TO THE NORTH, HAVING A RADIUS OF 1525.00 FEET, THROUGH A CENTRAL ANGLE OF 12°24’50”, AN ARC LENGTH OF 330.42 FEET TO A POINT OF COMPOUND CURVATURE; THENCE ALONG SAID COMPOUND CURVE, CONCAVE TO THE NORTH, HAVING A RADIUS OF1175.00 FEET, THROUGH A CENTRAL ANGLE OF 01°50’23, AN ARC LENGTH OF 37.73 FEET, TO A POINT OF NON-TANGENCY, THE RADIUS POINT OF WHICH BEARS SOUTH 05°23’34” WEST; THENCE SOUTH 27°37’39” WEST 122.22 FEET; THENCE SOUTH 64°56’28” WEST 152.60 FEET; THENCE NORTH 54°05’20” WEST 225.92 FEET; THENCE SOUTH 87°40’43” WEST 91.81 FEET; THENCE ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS NORTH 09°53’56” WEST, CONCAVE TO THE NORTH, HAVING A RADIUS OF 1225.00 FEET, THROUGH A CENTRAL ANGLE OF 06°25’39”, AN ARC LENGTH OF 137.42 FEET, TO A POINT OF NON-TANGENCY, THE RADIUS POINT OF WHICH BEARS NORTH 03°28’17” WEST; THENCE SOUTH 23°37’03” WEST 164.40 FEET; THENCE SOUTH 74°01’35” WEST 195.64 FEET; THENCE NORTH 82°39’32” WEST 204.10 FEET; THENCE NORTH 53°44’04” WEST 255.59 FEET; THENCE SOUTH 82°18’54” WEST 105.06 FEET; THENCE SOUTH 19°51’38” WEST 170.84 FEET; THENCE NORTH 89°27’07” WEST 115.61 FEET; THENCE NORTH 24°59’58” WEST 154.13 FEET; THENCE SOUTH 88°55’16” WEST 216.17 FEET; THENCE SOUTH 19°52’26” WEST 178.82 FEET; THENCE SOUTH 85°17’16” WEST 320.99 FEET; THENCE NORTH 24°24’25” WEST 140.61 FEET; THENCE SOUTH 86°20’13” WEST 294.72 FEET; THENCE SOUTH 48°49’53” WEST 102.97 FEET; THENCE NORTH 66°31’21” WEST 232.99 FEET; THENCE NORTH 43°02’38” WEST 241.96 FEET; THENCE NORTH 74°41’36” WEST 484.10 FEET; THENCE SOUTH 81°08’09” WEST 378.64 FEET; THENCE NORTH 41°39’34” WEST 426.98 FEET; THENCE NORTH 60°33’37” WEST 260.44 FEET; THENCE SOUTH 78°03’55” WEST 380.38 FEET; THENCE SOUTH 53°16’10” WEST 2.43 FEET; THENCE ALONG THE ARC OF A CURVE, CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 389.00, THROUGH A CENTRAL ANGLE OF 26°02’14”, AN ARC LENGTH OF 176.78 FEET; THENCE SOUTH 27°13’56” WEST 74.74 FEET; THENCE, ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS SOUTH 69°01’00” EAST, CONCAVE TO THE EAST, HAVING A RADIUS OF 650.00 FEET, THROUGH A CENTRAL ANGLE OF 04°29’19”, AN ARCH LENGTH OF 50.92 FEET; THENCE SOUTH 16°29’42” WEST 18.85 FEET; THENCE NORTH 74°30’24” WEST 300.19 FEET; THENCE NORTH 67°22’45” WEST 458.31 FEET; THENCE NORTH 76°11’25” WEST 458.62 FEET; THENCE NORTH 87°58’44” WEST 407.40

FEET; THENCE NORTH 76°12’50”WEST 301.13 FEET; THENCE NORTH 81°06’38” WEST 222.75 FEET; THENCE NORTH 55°21’20” WEST 274.43 FEET; THENCE SOUTH 70°39’55”WEST 123.83 FEET; THENCE NORTH 03°08’04” EAST 558.44 FEET; THENCE SOUTH 88°22’02” EAST 890.26 FEET; THENCE NORTH 01°37’58” EAST 583.44 FEET; THENCE NORTH 62°27’25” EAST 539.69 FEET; THENCE ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS NORTH 24°24’16” EAST, CONCAVE TO THE NORTHEAST, HAVING A RADIUS OF 8030.00 FEET, THROUGH A CENTRAL ANGLE OF 00°20’22”, AN ARC LENGTH OF 47.56 FEET TO A POINT ON A REVERSE CURVE; THENCE ALONG THE ARC OF A REVERSE CURVE, CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 1570.00 FEET, THROUGH A CENTRAL ANGLE OF 06°24’00”, AN ARC LENGTH OF 175.37 FEET, TO A POINT OF NON-TANGENCY, THE RADIUS POINT OF WHICH BEARS SOUTH 18°20’38” WEST; THENCE SOUTH 62°27’25” WEST 341.72 FEET; THENCE NORTH 75°52’39” WEST 963.67 FEET; THENCE NORTH 00°30’45” WEST 319.35 FEET; THENCE NORTH 00°50’31” EAST 1362.44 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 444.83 ACRES (19,376,631 SQ. FT.) MORE OR LESS.

_____

WILLIAM DOUGLAS CRUME
L.S. 7059

EXHIBIT B

P/A Design Resources

GHAD Boundary Exhibit

4748.1.500.01
November 1, 2006

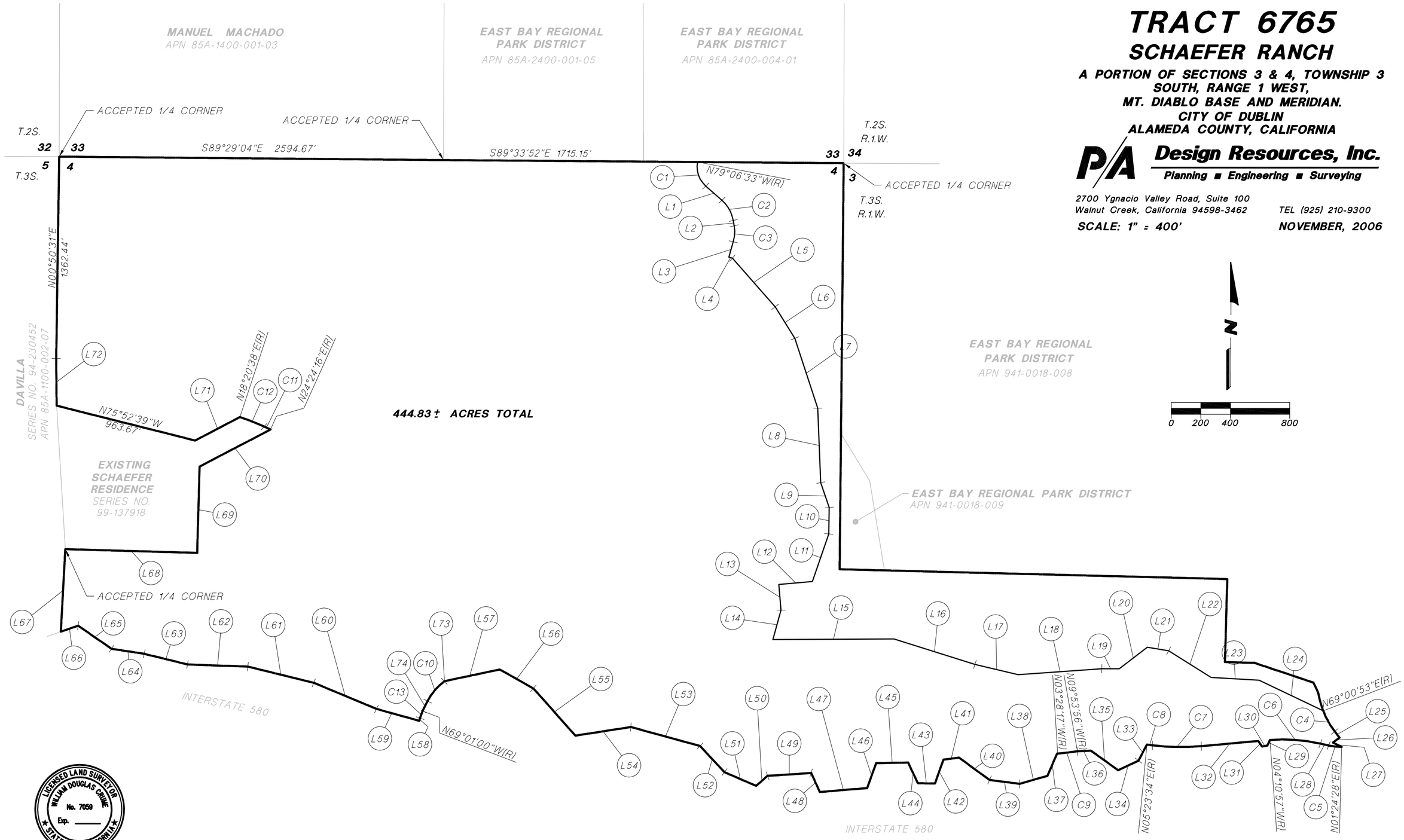
TRACT 6765
SCHAEFER RANCH

A PORTION OF SECTIONS 3 & 4, TOWNSHIP 3 SOUTH, RANGE 1 WEST, MT. DIABLO BASE AND MERIDIAN.
CITY OF DUBLIN
ALAMEDA COUNTY, CALIFORNIA

P/A Design Resources, Inc.
Planning ■ Engineering ■ Surveying

2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462
TEL (925) 210-9300

SCALE: 1" = 400'
NOVEMBER, 2006



LICENSED LAND SURVEYOR
WILLIAM DOUGLAS CRUME
No. 7059
Exp. _____
STATE OF CALIFORNIA

WILLIAM DOUGLAS CRUME DATE
LICENSE NO. 7059
EXPIRES DECEMBER 31, 2006

EXHIBIT 'B'
GHAD BOUNDARY EXHIBIT

P:\Drawings\03024-20 Schaefer Ranch\Final Map\03024-FM.dwg, 10/31/2006 11:53:37 AM, Station e, P/A Design Resources, Inc.

TRACT 6765

SCHAEFER RANCH

A PORTION OF SECTIONS 3 & 4, TOWNSHIP 3 SOUTH, RANGE 1 WEST, MT. DIABLO BASE AND MERIDIAN.
CITY OF DUBLIN
ALAMEDA COUNTY, CALIFORNIA

Design Resources, Inc.
Planning ■ Engineering ■ Surveying
2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462 TEL (925) 210-9300

NOVEMBER, 2006

LINE TABLE		
LINE	LENGTH	BEARING
L1	145.11	S48°34'13"E
L2	35.93	S09°59'09"E
L3	108.23	S16°19'16"W
L4	25.00	S73°40'44"E
L5	438.12	S41°19'00"E
L6	249.89	S32°04'20"E
L7	497.44	S18°05'49"E
L8	502.81	S02°20'33"E
L9	176.93	S18°35'08"E
L10	178.88	S00°34'07"W
L11	338.98	S19°09'21"W
L12	227.56	S84°55'54"W
L13	174.32	S05°04'06"E
L14	205.73	S15°29'10"W
L15	816.74	N89°42'48"E
L16	573.68	S72°27'42"E
L17	299.82	S76°44'06"E
L18	565.57	N86°01'31"E
L19	118.45	S90°00'00"E
L20	238.87	N52°15'21"E
L21	145.72	S80°23'31"E
L22	338.94	S57°59'05"E
L23	324.50	S86°40'56"E
L24	479.65	S64°23'41"E
L25	53.18	S37°17'05"E
L26	54.55	S52°46'22"W
L27	64.98	S62°26'35"E
L28	57.82	N77°29'03"W
L29	41.26	S24°46'42"W
L30	36.60	S79°18'27"W
L31	45.12	N34°14'51"W
L32	386.53	S84°49'07"W
L33	122.22	S27°37'39"W
L34	152.60	S64°56'28"W
L35	225.92	N54°05'20"W
L36	91.81	S87°40'43"W
L37	164.40	S23°37'03"W

LINE TABLE		
LINE	LENGTH	BEARING
L38	195.64	S74°01'35"W
L39	204.10	N82°39'32"W
L40	255.59	N53°44'04"W
L41	105.06	S82°18'54"W
L42	170.84	S19°51'38"W
L43	115.61	N89°27'07"W
L44	154.13	N24°59'58"W
L45	216.17	S88°55'16"W
L46	178.82	S19°52'26"W
L47	320.99	S85°17'16"W
L48	140.61	N24°24'25"W
L49	294.72	S86°20'13"W
L50	102.97	S48°49'53"W
L51	232.99	N66°31'21"W
L52	241.96	N43°02'38"W
L53	484.10	N74°41'36"W
L54	378.64	S81°08'09"W
L55	426.98	N41°39'34"W
L56	260.44	N60°33'37"W
L57	380.38	S78°03'55"W
L58	18.85	S16°29'42"W
L59	300.19	N74°30'24"W
L60	458.31	N67°22'45"W
L61	458.62	N76°11'25"W
L62	407.40	N87°58'44"W
L63	301.13	N76°12'50"W
L64	222.75	N81°06'38"W
L65	274.44	N55°21'20"W
L66	123.83	S70°39'55"W
L67	558.44	N03°08'04"E
L68	890.26	S88°22'02"E
L69	583.44	N01°37'58"E
L70	539.69	N62°27'25"E
L71	341.72	S62°27'25"W
L72	319.35	N00°30'45"W
L73	2.43	S53°16'10"W
L74	74.74	S27°13'56"W

CURVE DATA			
CURVE	DELTA	RADIUS	LENGTH
C1	59°27'40"	172.50'	179.02'
C2	38°35'04"	237.50'	159.94'
C3	26°18'25"	237.50'	109.05'
C4	16°17'59"	559.94'	159.29'
C5	11°06'30"	450.00'	87.24'
C6	16°41'54"	1175.00'	342.44'
C7	12°24'50"	1525.00'	330.42'
C8	1°50'23"	1175.00'	37.73'
C9	6°25'39"	1225.00'	137.42'
C10	26°02'14"	389.00'	176.78'
C11	0°20'22"	8030.00'	47.56'
C12	6°24'00"	1570.00'	175.37'
C13	4°29'19"	650.00'	50.92'

EXHIBIT 'B'

GHAD BOUNDARY EXHIBIT

Parcel name: GHAD PARCEL NOV 1, 2006

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   North: 43762.29            East : 69945.38
Line  Course: S 89-29-04 E  Length: 2594.67
        North: 43738.94              East : 72539.94
Line  Course: S 89-33-52 E  Length: 1715.15
        North: 43725.90              East : 74255.05
Curve  Length: 179.02              Radius: 172.50
        Delta: 59-27-40            Tangent: 98.51
        Chord: 171.09               Course: S 18-50-23 E
    Course In: S 79-06-33 E     Course Out: S 41-25-47 W
    RP  North: 43693.31              East : 74424.44
    End North: 43563.98              East : 74310.30
Line  Course: S 48-34-13 E  Length: 145.11
        North: 43467.96              East : 74419.09
Curve  Length: 159.94              Radius: 237.50
        Delta: 38-35-04            Tangent: 83.14
        Chord: 156.93               Course: S 29-16-41 E
    Course In: S 41-25-47 W     Course Out: N 80-00-51 E
    RP  North: 43289.89              East : 74261.94
    End North: 43331.07              East : 74495.84
Line  Course: S 09-59-09 E  Length: 35.93
        North: 43295.69              East : 74502.07
Curve  Length: 109.05              Radius: 237.50
        Delta: 26-18-25            Tangent: 55.50
        Chord: 108.09               Course: S 03-10-04 W
    Course In: S 80-00-51 W     Course Out: S 73-40-44 E
    RP  North: 43254.50              East : 74268.17
    End North: 43187.76              East : 74496.10
Line  Course: S 16-19-16 W  Length: 108.23
        North: 43083.89              East : 74465.68
Line  Course: S 73-40-44 E  Length: 25.00
        North: 43076.87              East : 74489.68
Line  Course: S 41-19-00 E  Length: 438.12
        North: 42747.81              East : 74778.93
Line  Course: S 32-04-20 E  Length: 249.89
        North: 42536.06              East : 74911.62
Line  Course: S 18-05-49 E  Length: 497.44
        North: 42063.22              East : 75066.14
Line  Course: S 02-20-33 E  Length: 502.81
        North: 41560.83              East : 75086.69
Line  Course: S 18-35-08 E  Length: 176.93
        North: 41393.13              East : 75143.08
Line  Course: S 00-34-07 W  Length: 178.88
        North: 41214.26              East : 75141.31
Line  Course: S 19-09-21 W  Length: 338.98
        North: 40894.05              East : 75030.07
Line  Course: S 84-55-54 W  Length: 227.56
        North: 40873.94              East : 74803.40
Line  Course: S 05-04-06 E  Length: 174.32
        North: 40700.31              East : 74818.80
Line  Course: S 15-29-10 W  Length: 205.73
        North: 40502.05              East : 74763.87
Line  Course: N 89-42-48 E  Length: 816.74
        North: 40506.13              East : 75580.60
Line  Course: S 72-27-42 E  Length: 573.68
        North: 40333.26              East : 76127.62
Line  Course: S 76-44-06 E  Length: 299.82
        North: 40264.46              East : 76419.44
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Line  Course: N 86-01-31 E  Length: 565.57
        North: 40303.66              East : 76983.65
Line  Course: S 90-00-00 E  Length: 118.45
        North: 40303.66              East : 77102.10
Line  Course: N 52-15-21 E  Length: 238.87
        North: 40449.89              East : 77290.98
Line  Course: S 80-23-31 E  Length: 145.72
        North: 40425.56              East : 77434.66
Line  Course: S 57-59-05 E  Length: 338.94
        North: 40245.88              East : 77722.05
Line  Course: S 86-40-56 E  Length: 324.50
        North: 40227.10              East : 78046.00
Line  Course: S 64-23-41 E  Length: 479.65
        North: 40019.81              East : 78478.55
Curve  Length: 159.29              Radius: 559.94
        Delta: 16-17-59           Tangent: 80.19
        Chord: 158.75              Course: S 29-08-06 E
    Course In: N 69-00-53 E     Course Out: S 52-42-55 W
    RP  North: 40220.34              East : 79001.35
    End North: 39881.14              East : 78555.84
Line  Course: S 37-17-05 E  Length: 53.18
        North: 39838.83              East : 78588.06
Line  Course: S 52-46-22 W  Length: 54.55
        North: 39805.83              East : 78544.62
Line  Course: S 62-26-35 E  Length: 64.98
        North: 39775.76              East : 78602.23
Curve  Length: 87.24               Radius: 450.00
        Delta: 11-06-30           Tangent: 43.76
        Chord: 87.11               Course: N 83-02-18 W
    Course In: N 01-24-28 E     Course Out: S 12-30-57 W
    RP  North: 40225.63              East : 78613.29
    End North: 39786.32              East : 78515.77
Line  Course: N 77-29-03 W  Length: 57.82
        North: 39798.85              East : 78459.32
Curve  Length: 342.44              Radius: 1175.00
        Delta: 16-41-54           Tangent: 172.44
        Chord: 341.23              Course: N 85-50-00 W
    Course In: S 12-30-57 W     Course Out: N 04-10-57 W
    RP  North: 38651.77              East : 78204.69
    End North: 39823.64              East : 78118.99
Line  Course: S 24-46-42 W  Length: 41.26
        North: 39786.18              East : 78101.70
Line  Course: S 79-18-27 W  Length: 36.60
        North: 39779.39              East : 78065.73
Line  Course: N 34-14-51 W  Length: 45.12
        North: 39816.69              East : 78040.34
Line  Course: S 84-49-07 W  Length: 386.53
        North: 39781.78              East : 77655.39
Curve  Length: 330.42              Radius: 1525.00
        Delta: 12-24-50           Tangent: 165.86
        Chord: 329.77              Course: N 88-58-28 W
    Course In: N 05-10-53 W     Course Out: S 07-13-57 W
    RP  North: 41300.55              East : 77517.67
    End North: 39787.68              East : 77325.68
Curve  Length: 37.73               Radius: 1175.00
        Delta: 1-50-23            Tangent: 18.87
        Chord: 37.73               Course: N 83-41-14 W
    Course In: S 07-13-57 W     Course Out: N 05-23-34 E
    RP  North: 38622.03              East : 77177.75
    End North: 39791.83              East : 77288.18
Line  Course: S 27-37-39 W  Length: 122.22
        North: 39683.55              East : 77231.50
Line  Course: S 64-56-28 W  Length: 152.60
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        North: 39618.91              East : 77093.27
Line  Course: N 54-05-20 W  Length: 225.92
        North: 39751.42              East : 76910.29
Line  Course: S 87-40-43 W  Length: 91.81
        North: 39747.70              East : 76818.55
Curve  Length: 137.42              Radius: 1225.00
        Delta: 6-25-39            Tangent: 68.78
        Chord: 137.35              Course: S 83-18-54 W
    Course In: N 09-53-56 W     Course Out: S 03-28-17 E
    RP  North: 40954.47              East : 76607.96
    End North: 39731.72              East : 76682.14
Line  Course: S 23-37-03 W  Length: 164.40
        North: 39581.09              East : 76616.27
Line  Course: S 74-01-35 W  Length: 195.64
        North: 39527.25              East : 76428.19
Line  Course: N 82-39-32 W  Length: 204.10
        North: 39553.33              East : 76225.76
Line  Course: N 53-44-04 W  Length: 255.59
        North: 39704.51              East : 76019.68
Line  Course: S 82-18-54 W  Length: 105.06
        North: 39690.46              East : 75915.57
Line  Course: S 19-51-38 W  Length: 170.84
        North: 39529.79              East : 75857.53
Line  Course: N 89-27-07 W  Length: 115.61
        North: 39530.89              East : 75741.92
Line  Course: N 24-59-58 W  Length: 154.13
        North: 39670.58              East : 75676.79
Line  Course: S 88-55-16 W  Length: 216.17
        North: 39666.51              East : 75460.65
Line  Course: S 19-52-26 W  Length: 178.82
        North: 39498.34              East : 75399.86
Line  Course: S 85-17-16 W  Length: 320.99
        North: 39471.97              East : 75079.96
Line  Course: N 24-24-25 W  Length: 140.61
        North: 39600.02              East : 75021.86
Line  Course: S 86-20-13 W  Length: 294.72
        North: 39581.19              East : 74727.74
Line  Course: S 48-49-53 W  Length: 102.97
        North: 39513.40              East : 74650.23
Line  Course: N 66-31-21 W  Length: 232.99
        North: 39606.22              East : 74436.52
Line  Course: N 43-02-38 W  Length: 241.96
        North: 39783.06              East : 74271.37
Line  Course: N 74-41-36 W  Length: 484.10
        North: 39910.85              East : 73804.44
Line  Course: S 81-08-09 W  Length: 378.64
        North: 39852.51              East : 73430.33
Line  Course: N 41-39-34 W  Length: 426.98
        North: 40171.51              East : 73146.51
Line  Course: N 60-33-37 W  Length: 260.44
        North: 40299.51              East : 72919.70
Line  Course: S 78-03-55 W  Length: 380.38
        North: 40220.85              East : 72547.54
Line  Course: S 53-16-10 W  Length: 2.43
        North: 40219.40              East : 72545.60
Curve  Length: 176.78              Radius: 389.00
        Delta: 26-02-14           Tangent: 89.94
        Chord: 175.26              Course: S 40-15-02 W
    Course In: S 36-43-50 E     Course Out: N 62-46-05 W
    RP  North: 39907.63              East : 72778.24
    End North: 40085.64              East : 72432.36
Line  Course: S 27-13-56 W  Length: 74.74
        North: 40019.18              East : 72398.16
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Curve  Length: 50.92              Radius: 650.00
        Delta: 4-29-19           Tangent: 25.47
        Chord: 50.90              Course: S 18-44-21 W
    Course In: S 69-01-00 E     Course Out: N 73-30-18 W
    RP  North: 39786.42              East : 73005.05
    End North: 39970.97              East : 72381.80
Line  Course: S 16-29-42 W  Length: 18.85
        North: 39952.91              East : 72376.45
Line  Course: N 74-30-24 W  Length: 300.19
        North: 40033.10              East : 72087.16
Line  Course: N 67-22-45 W  Length: 458.31
        North: 40209.38              East : 71664.12
Line  Course: N 76-11-25 W  Length: 458.62
        North: 40318.85              East : 71218.75
Line  Course: N 87-58-44 W  Length: 407.40
        North: 40333.22              East : 70811.61
Line  Course: N 76-12-50 W  Length: 301.13
        North: 40404.98              East : 70519.15
Line  Course: N 81-06-38 W  Length: 222.75
        North: 40439.40              East : 70299.08
Line  Course: N 55-21-20 W  Length: 274.44
        North: 40595.41              East : 70073.31
Line  Course: S 70-39-55 W  Length: 123.83
        North: 40554.41              East : 69956.46
Line  Course: N 03-08-04 E  Length: 558.44
        North: 41112.01              East : 69986.99
Line  Course: S 88-22-02 E  Length: 890.26
        North: 41086.65              East : 70876.89
Line  Course: N 01-37-58 E  Length: 583.44
        North: 41669.85              East : 70893.52
Line  Course: N 62-27-25 E  Length: 539.69
        North: 41919.41              East : 71372.04
Curve  Length: 47.56              Radius: 8030.00
        Delta: 0-20-22           Tangent: 23.78
        Chord: 47.56              Course: N 65-25-33 W
    Course In: N 24-24-16 E     Course Out: S 24-44-38 W
    RP  North: 49231.94              East : 74689.84
    End North: 41939.19              East : 71328.78
Curve  Length: 175.37             Radius: 1570.00
        Delta: 6-24-00           Tangent: 87.78
        Chord: 175.28             Course: N 68-27-22 W
    Course In: S 24-44-38 W     Course Out: N 18-20-38 E
    RP  North: 40513.34              East : 70671.63
    End North: 42003.56              East : 71165.74
Line  Course: S 62-27-25 W  Length: 341.72
        North: 41845.54              East : 70862.75
Line  Course: N 75-52-39 W  Length: 963.67
        North: 42080.67              East : 69928.21
Line  Course: N 00-30-45 W  Length: 319.35
        North: 42400.01              East : 69925.35
Line  Course: N 00-50-31 E  Length: 1362.44
        North: 43762.30              East : 69945.37

   Perimeter: 28069.27   Area: 19,376,631 sq.ft. 444.83 acres

Mapcheck Closure - (Uses listed courses, radii, and deltas)
Error Closure: 0.02               Course: N 31-41-25 W
  Error North: 0.014               East : -0.008
Precision  1: 1,403,464.00
```

ENGEO
INCORPORATED

P/A Design Resources

Open Space Exhibit

4748.1.500.01
November 1, 2006

SCHAEFER RANCH

CITY OF DUBLIN, CALIFORNIA

G.H.A.D. OPEN SPACE EXHIBIT

(BASED ON THE 302 LOT PLAN)

DATE: AUGUST 16, 2006

LEGEND

220.85 ± AC	G.H.A.D. OPEN SPACE PRESERVED WITH CONSERVATION EASEMENT OVERLAY (ZONE 'A')
66.20 ± AC	G.H.A.D. OPEN SPACE WITH CONSERVATION EASEMENT OVERLAY (ZONE 'B')
1.69 ± AC	E.B.R.P.D. STAGING AREA WITH NO CONSERVATION EASEMENT
10.27 ± AC	CITY PARK PARCELS
6.87 ± AC	STORM WATER DETENTION BASIN AND ACCESS
	POND
	ROAD
	DEVELOPMENT

TOTAL PROPOSED PRESERVED OPEN SPACE SUBJECT TO CONSERVATION EASEMENTS IS 287.05 ± ACRES

TRAIL LEGEND

- REGIONAL TRAIL
- OTHER TRAILS

N

SCALE: 1" = 200'

0 100 200 400

Design Resources, Inc.
Planning ■ Engineering ■ Surveying
2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462 TEL (925) 210-9300

PLATE 1

P/A Design Resources

Parcel Designation Plan

4748.1.500.01
November 1, 2006

SCHAEFER RANCH

CITY OF DUBLIN, CALIFORNIA

G.H.A.D. PARCEL DESIGNATION PLAN

DATE: AUGUST 16, 2006

PLATE 1

LEGEND

- G.H.A.D. OPEN SPACE PRESERVED WITH CONSERVATION EASEMENT OVERLAY (ZONE 'A')
- G.H.A.D. OPEN SPACE WITH CONSERVATION EASEMENT OVERLAY (ZONE 'B')
- E.B.R.P.D. STAGING AREA WITH NO CONSERVATION EASEMENT
- CITY PARK PARCELS
- STORM WATER DETENTION BASIN AND ACCESS
- POND
- ROAD
- DEVELOPMENT

N

SCALE: 1" = 200'

0 100 200 400

P/A Design Resources, Inc.

Planning ■ Engineering ■ Surveying

2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462 TEL (925) 210-9300

PLATE 2

ENGEO Incorporated

Geologic Map of Schaefer Ranch

4748.1.500.01
November 1, 2006

EXPLANATION

Qaf	FILL
Qc	COLLUVIUM
Tmu	UPPER MIOCENE NONMARINE SEDIMENTS
Tmsa	CALCAREOUS SANDSTONE AND SHELL-BRECCIA, BRIONES FORMATION
Tmsb	SANDSTONE, BRIONES FORMATION
Tmss/sl	SANDSTONE AND SILTSTONE, BRIONES FORMATION
Tmsl	SILTSTONE AND SANDSTONE, MONTEREY GROUP
TP-23	APPROXIMATE LOCATION OF TEST PIT (ENGEO)
B-7	APPROXIMATE LOCATION OF BORING (AKA)
P-1	APPROXIMATE LOCATION OF PROBE (AKA)
TP-47	APPROXIMATE LOCATION OF TEST PIT (AKA)
L-5	LANDSLIDE, WITH NUMBER DESIGNATION
B-3	BEDROCK LANDSLIDE, WITH NUMBER DESIGNATION
	GEOLOGIC CONTACT
	FAULT, DOTTED WHERE CONCEALED
	THRUST FAULT, DOTTED WHERE CONCEALED
35	STRIKE AND DIP OF BEDDING
45	STRIKE AND DIP OF SHEAR PLANE
1 1'	APPROXIMATE LOCATION OF CROSS-SECTION

N

0 FEET 300
0 METERS 150

BASE MAP SOURCE: PA DESIGN RESOURCES

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

GEOLOGIC MAP
SCHAEFER RANCH GHAD
DUBLIN, CALIFORNIA

PROJECT NO.:	4748.1.500.01
DATE:	JANUARY 2006
DRAWN BY:	CHECKED BY:

FIGURE NO. 2

APPENDIX A

ENGEO Incorporated

Water Quality - Detention Basin Monitoring and Maintenance
Schaefer Ranch, Dublin, California
November 1, 2006

Project No.
4748.1.500.01

November 1, 2006

Mr. Albert Seeno III
Schaefer Ranch Holdings LLC
4061 Port Chicago Highway, Suite H
Concord, CA 94520

Subject: Schaefer Ranch
Dublin, California

WATER QUALITY - DETENTION BASIN MONITORING AND MAINTENANCE

Dear Mr. Seeno:

As requested, we have prepared monitoring and maintenance recommendations for three Water Quality-Detention Basins within the Schaefer Ranch development property in Dublin, California. This is intended as a working document for use during maintenance of the water quality detention basins. The basins are designed as water quality and detention facilities to control peak flood flows from the site. Maintenance of the basins will include, but not be limited to, erosion/slope protection, vegetation management, sediment accumulation, trash/debris removal and inspections of the inlet and outlet structures. The detention basins will be owned and maintained by the Schaefer Ranch Geologic Hazard Abatement District (GHAD).

We are pleased to have been of service to you on this project and are prepared to consult further with you and your design team.

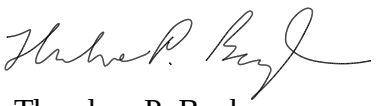
Very truly yours,

ENGEO INCORPORATED

Prepared by:

J. Brooks Ramsdell
jbr/tpb/jf

Reviewed by:



Theodore P. Bayham

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INTRODUCTION

The purpose of this document is to provide a framework for the management and maintenance of the Water Quality - Detention Basin at the Schaefer Ranch development. The three detention basins are located throughout the Schaefer Ranch development property—one being near Dublin Boulevard on the western edge of the property, one being near Dublin Boulevard in the south-central portion of the property, and one east of 'Road A' on the eastern portion of the property. The detention basins will be used to mitigate peak flows from the surface runoff on the subject site.

Basin A is located in the western portion of the development, directly north of Dublin Boulevard. The surrounding northwestern to eastern slopes serve as inlets for the detention basin. The outlet for this basin is centrally located on the southern boundary of the basin, and runs westerly. Interior slopes for the basin are planned to be up to 30 feet high with a slope gradient of 2:1 (horizontal:vertical). An approximately 15-foot-wide bench extends around the top of the debris basin berm on the south western boundaries of the basin. Slopes on the other side of the road are proposed at a 2.5:1 gradient, sloping down to the west. Slopes to the east of the basin are at a 2:1 gradient, and are approximately 30 feet high.

Basin B, consisting of a water quality basin and a detention basin, is located in the south-central portion of the development between Schaefer Road and Dublin Boulevard. The inlets for Basin B are located northeast and east of the basin. The outlet for this basin is centrally located on the western boundary of the basin, and runs westerly. The outlet for Basin B discharges into a new closed conduit system. Interior slopes for the basin are planned to be up to 30 feet high with a slope gradient of 3:1 (horizontal:vertical). An approximately 15-foot-wide bench extends around the top of the debris basin berm on the south and western boundaries of the basin.

Basin C, consisting of a water quality basin and a detention basin, is located on the eastern portion of the development, directly southeast of Road 'A.' The inlets are centrally located on

the western side of the basin. The outlet for this basin is located on the northern point of the basin, and runs northwesterly. The outlet for Basin C discharges into a new closed conduit system. Interior slopes for the basin are planned to be up to 40 feet high with slope gradients of 2.5:1 (horizontal:vertical).

Monitoring Schedule

Quarterly monitoring during January, April, July and October is planned, with additional monitoring within two working days after significant storm events (i.e. one inch of rainfall in a 12-hour period). Technicians retained by the GHAD will carry out site inspections and utilize the Monitoring Report Form included at the back of this manual. Personnel and subcontractors involved in detention basin management will be trained on reading the staff gauge, proper pruning/cutting techniques, and inspection measures by the GHAD. A sample Inspection Report is included at the end of this letter.

Each water quality basin has been designed to meter out detained runoff over 48 hours when the basin water surface elevation is at the side opening flowline of the inlet pipe riser/overflow structure. At this water surface elevation, residence time longer than 48 hours could be an indication of sediment buildup (resulting in loss of actual water storage volume) or blockage of outlet pipe. In this case actions should be taken to investigate the cause and corrective actions should be implemented.

Sediment accumulation measurements will monitor the rate of sedimentation quarterly in the detention basin and identify the need for removal. Some sedimentation is expected within the basin; however, removal is planned only to the extent necessary for proper basin function.

General Maintenance and Monitoring

Procedures for the following maintenance and monitoring items are presented in the following section:

- Inspection and repair of inlet and outlet structures.
- Stabilization and/or repair of eroded areas or failures of the embankment surrounding the Detention Basins.
- Pruning/cutting of the vegetation within and surrounding the Detention Basin.
- Maintenance of all access roadways.
- Monitoring any perimeter fencing for public safety.
- Mosquito Abatement.
- Sediment accumulation measurement and removal.

Inlet and Outlet Structures. Maintenance of inlet and outlet structures will involve the clearing of debris and repair of the trash rack structure, as required to allow passage of storm flows. The inlet and outlet structures should be observed during or immediately after large storm events to avoid prolonged blockage. Any observed damage or apparent inoperability of the structures will be reported to the GHAD Manager immediately.

In the event that the primary detention basin outlet is rendered inoperable during a major storm event, the emergency overflow spillway should be allowed to operate as designed to pass the storm flows. Emergency maintenance of the inoperable outlet structure should be undertaken at such time, and with the equipment, that the GHAD Manager deems appropriate.

Detention Basin Embankments. Maintenance shall involve observation of the detention basin embankment. The detention basin slopes should be inspected for obvious signs of vertical and/or

horizontal displacements. All embankment sides should be free of erosion, rills, slumps or landslides. Any observed slope displacement should be reported to GHAD Manager immediately. Any irrigation systems are to be monitored for proper function. Leaking or malfunctioning irrigation systems will be repaired within two days of inspection.

Vegetation. Vegetation that does not preclude the proper functioning of the Detention Basins should be allowed on the floor of the basin to aid in the trapping of sediment. Although vegetative growth is generally encouraged, excess vegetation (defined as shrub and tree growth in excess of 5 feet in height) must be removed from the basin floor by pruning. Herbicides will not be used in the basin unless absolutely necessary. Such use shall be governed by all applicable rules and regulations.

Vegetation removal will be accomplished by pruning with hand labor, unless aggressive, non-native species become pervasive, in which case other methods of removal can be initiated at the discretion of the GHAD Manager. Activities will involve only the cutting and removing of vegetation above the ground, e.g. mowing, rotary cutting, and chainsawing, where the activity neither substantially disturbs the root system nor involves mechanized pushing, dragging, or other similar activities. No heavy equipment will be used within the detention basin for routine vegetation control. The pruning debris will be removed from the basin in burlap or canvas bundles and trucked to an authorized dumpsite reviewed and approved by the GHAD Manager. Vegetation removed or destroyed during maintenance will be allowed to re-establish naturally without replanting.

Maintenance of Access Roads. Maintenance of access roads and top of berm bench, as shown on the improvement plans, will involve repair of excessive bumps, cracks and depressions such that maintenance vehicles can easily navigate the roads. The roadways will be inspected on a semi-annual basis and repaired as needed. Any damage to or failures of the embankments near the road will be reported to the GHAD Manager immediately.

Fencing Repair. Maintenance of fencing involves repair of all gaps, tears, sags and breaks such that public safety is provided. All perimeter fencing will be monitored quarterly and maintained in good condition without breaks or damage.

Mosquito Abatement. It is possible that mosquito abatement will not be required in the water quality/detention basins due to the drying cycle in the summer months; however, if homeowner complaints are received by the GHAD, the GHAD will contact Alameda County Vector Control.

Desilting and Clearing of Basin. Detention basin floors must be regularly cleared of excess sediment and excess vegetation to enable proper flow characteristics. Failure to do so can create flood hazards. The floor of the detention basin should be monitored on a semi-annual basis. If sediment in excess of 18 inches or 10 percent of the storage capacity, whichever is greater, has accumulated above design grades, the sediment should be removed. Sediment accumulation will be measured with installed staff gauges. If vegetation in excess of 5 feet in height is present, it will require removal as described in the Vegetation section. Vegetation accumulation will be measured with a tape measure in at least four locations within the basin floor. Prior to sediment removal or vegetation pruning, the procedure should be reviewed and authorized by the GHAD Manager.

If sediment in excess of 18 inches or 10 percent of the storage capacity, whichever is greater, has accumulated above design grades, sediment removal shall be undertaken before the next winter season. The dry season is the preferred time of year for sediment removal. Sediment removal for routine maintenance will be with small mechanized equipment, hand labor and wheelbarrows as much as possible subject to compliance with regulatory agency requirements. Emergency repairs may require use of larger equipment including, but not limited to, excavators. Sediment will be removed in small sections, with as little disturbance to existing vegetation as possible. No heavy equipment will be used within the detention basin without permission from the GHAD Manager.

The sediment should be disposed of in a legal manner. In general, due to the steepness of the site, limited areas will be available to place the material from the detention basin on open space areas of the parcel and any proposed disposal areas should be reviewed by the GHAD Manager in consultation with a qualified biologist as necessary. The sediment will not be placed within 20 feet of a creek or drainage. The sediment will not be placed on sloping ground, or any area of sensitive wildlife habitat. After spreading, the sediment will be hand seeded and covered with straw mulch.

Detention Basin Catchment Area Inspection and Monitoring. Monitoring of the detention basin shall involve visual inspection of the detention basin containment area and piezometer measurement if installed. The detention basin catchment area should be inspected for obvious signs of vertical and/or horizontal displacements. The base of the detention basin should be free of erosion, rills, slumps or landslides.

Emergency Response and Scheduled Remedial Repair

Emergency response and scheduled repair expenditures are to be prioritized at the discretion of the GHAD Manager 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 hazards that have either damaged or pose a significant threat of damage to the detention basin embankments or spillway.

B. Prevention, mitigation, abatement or control of hazards which have either damaged or pose a significant threat of damage to ancillary structures, including but not limited to the inlet and outlet pipes.

C. Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage to the detention basin.

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

1. Repair, maintenance or replacement of inlet or outlet control valves and structures.

2. Stabilization (either partial or total) of levee embankments by removal and replacement with compacted, drained fill.

3. Construction of erosion control measures. Whenever feasible, bioengineering techniques will be utilized and are preferred over hard armor.

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

5. Slope correction (e.g. gradient change, slope trimming or contouring).

6. Construction of additional surface ditches and/or detention basin, sediment traps, or backfill of eroded channels.

MONITORING REPORT

Schaefer Ranch
Dublin, California

WATER QUALITY – DETENTION BASIN OPERATIONS AND MAINTENANCE SITE MONITORING AND MAINTENANCE REPORT FORM

(TO BE COMPLETED QUARTERLY IN JANUARY, APRIL, JULY AND OCTOBER AND AS NECESSARY DURING HEAVY RAINFALL)

Inspector: _____ Date: _____
Weather Conditions: _____
Days since last rainfall: _____ Dry season? _____ Wet season? _____
Basin Water Level: _____ Sediment Accumulated since Last Monitoring Event _____

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the basin to drain and are they in satisfactory condition?				
2. Are access roads in satisfactory condition?				
3. Is all perimeter fencing in good condition without breaks, gaps or damage?				
4. Have the debris racks been cleaned and are they in good condition?				
5. Are embankments surrounding the basin in good condition without rills or failures?				

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
6. Is the vegetation less than 5 feet in height?				
7. Are embankment slopes protected with mulch or vegetation?				
8. Has sediment removal been undertaken in the last 3 months?				
9. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the basin?				
10. Do any basin devices require maintenance to provide more effective function?				
11. Are there signs of leaking irrigation systems?				
12. Are there any signs of vandalism?				
13. Are mosquitoes evident?				
14. Has mosquito abatement been undertaken since the last monitoring event?				
15. Are there remedial/repair tasks that should be undertaken in the near future?				

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
16. Is there evidence or information received in the last 3 months to indicate a lengthy drain time?				

"No" answers to Items 1-7 or "Yes" answers to Items 8-16 require a corrective action noted on Page 3.

WATER QUALITY - BASIN OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE
REPORT FORM (CONTINUED)

CORRECTIVE ACTIONS UNDERTAKEN
(If none required, enter date and "none")

DATE	DEFICIENCY NOTED	CORRECTIVE ACTION

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APPENDIX B

ENGEO Incorporated

Site Geology

4748.1.500.01
November 1, 2006

Site Geology

Regional geologic maps of the area have been prepared by Dibblee (1980), Crane (1988) and Graymer (1996). The most recent regional map prepared by Graymer indicates that the site is underlain by late and middle Miocene rocks of the Briones Formation and undivided middle Miocene marine rocks of the Monterey Group including the Rodeo Shale, Hambre Sandstone, Tice Shale and Oursan Sandstone.

Major folds in the site vicinity include the Kaiser Creek Syncline and the Knife Anticline, located north of the property, as shown on Plate 2. Two smaller unnamed folds that form a syncline-anticline pair are present on the south limb of the Kaiser Creek Syncline as shown on Plate 2. The axis of the syncline passes through the center of the Schaefer Ranch Property in a northwesterly direction, trending along the center of Marshall Canyon, passing through the ridge under Donlan Point (the "axis" is the center line of the fold; beds dip in opposite directions on either side of the fold axis). The synclinal axis extends to near the south site boundary, passing below the proposed Dublin Boulevard Extension. In the site vicinity, the major folds are commonly associated with low-angle compressional faults known as "thrust faults", including the Bollinger and Miller Creek Faults (Crane, undated, Dibblee, 1980, and Wagner, 1976). The thrust faults are thought to be the result of the same regional compressional forces that have caused the folding of the rocks in the East Bay Hills block. None of the thrust faults mapped in the site vicinity are considered to be active by the State.

Detailed mapping of the property included within the GHAD boundaries was completed as part of the Geotechnical Investigations completed by AKA (1997) and ENGEO Incorporated (2004). The results of these investigations are included in the geologic descriptions.

Geologic Units

Undocumented Fill. There are existing undocumented fills on the property associated with stock ponds, roads, and existing structures. The most extensive undocumented fill deposit appears to be at the entrance to the property at Schaefer Ranch Road. Approximately 25 feet of stiff clay interpreted to be undocumented fill was encountered in this location. It appears that this fill is likely associated with the construction of the adjacent Interstate 580. Proposed remedial grading includes the complete removal and replacement of this undocumented fill as well as other less extensive undocumented fill deposits on the site within the grading limits of the project.

Alluvium. Most of the creeks typically have steep, V-shaped channels incised into bedrock or landslide debris, with no significant alluvial deposits. Minor deposits of modern alluvium associated with the existing creeks occur in the lower reaches of Marshall Canyon and Wagon Wheel Canyon. These deposits appear to consist of 10 to 20 feet of relatively compressible, sandy to gravelly clay. A more significant deposit of alluvium occurs at the entrance to the property at Schaefer Ranch Road, where the base of the stiff silty to sandy clay was encountered at 35 feet and 45 feet below the surface.

A soil deposit identified as an old alluvial terrace occurs along the existing entrance road on the south side of the ridge, and is well exposed in a deep erosion gully. Exposures in the gully consist of stratified silty sand with pebble lenses. ENGEO and AKA borings in the terrace deposit record thicknesses varying from less than 10 feet to 44 feet. The deposit is dense and relatively incompressible.

Residual Soil and Colluvium

The site bedrock is typically mantled with 3 to 5 feet of residual soil formed from weathering and decomposition of the underlying bedrock. The weathering of the bedrock on the site typically produces a fine-grained soil containing expansive clays. Colluvium is a soil deposit

formed from downslope movement and deposition of residual soil by such processes as slopewash, sloughing/shallow sliding and creep. Mappable deposits of colluvium (typically thicker than 5 feet) occur in most swales and ravines and at the bases of many slopes on the property. The colluvium typically consists of expansive silty clay with rock fragments. The composition of the colluvium varies with the composition of the underlying bedrock. Within swales, the colluvial deposits tend to be relatively thicker and may be subject to flow or slip downslope.

Landslides

Landslide deposits consist of masses of unconsolidated material and/or bedrock that have moved downslope by sliding, falling, or flowing. Many landslides, ranging in size from very small to large, occur on the site. The landslides include earth flows, debris flows, bedrock slumps and translational landslides.

Shallow (less than 5 feet thick) to moderately deep (5 to 20 feet thick) earth flows are the most prevalent types of landslide at the site. Shallow landslides occur on the steeper slopes, along drainages and in swales. Larger, deep (greater than 20 feet) and deep-seated landslides (greater than 30 feet) were also identified at the site.

Bedrock

Upper Miocene Marine and Nonmarine Sediments, Undifferentiated

The rocks underlying the center of the syncline, on the southwest side of Marshall Canyon, appear to consist of interbedded claystone, siltstone and clay-cemented sandstone, including both marine and nonmarine deposits. This unit was previously mapped by Dibblee (1980) as Pliocene nonmarine rocks and by Graymer (1996) as “unnamed Miocene continental rocks”. The sandstone and siltstone units are weak to moderately strong and highly to moderately fractured.

Based on our experience with this mapped unit in the site vicinity and in projects to the north, we would expect that it could contain occasional layers of weak, relatively expansive claystone.

Briones Formation

The marine Briones Formation, which underlies the upper portions of the highest site ridges, consists mainly of brown, thickly-bedded, moderately-strong to strong, clay-cemented, fine- to medium-grained lithic sandstone. Some units contain minor thin beds of siltstone, friable sandstone and pebble conglomerate.

The most resistant beds in the Briones Formation are gray-brown, strong to very strong, carbonate-cemented, medium- to coarse-grained sandstone that contains abundant shell fragments.

Miocene Marine Sediments

In the south and east portions of the property, the slopes are underlain by interbedded marine sandstone and siltstone of the undivided Monterey Group. As mapped by Dibblee (1980) this unit is divided into an upper unit of sandstone with interbedded siltstone (Tmss) and a lower unit consisting mainly of siltstone with minor interbedded sandstone (Tmsl). The sandstone is thickly bedded, brown, weak to moderately strong, fine grained and clay cemented. The near-surface exposures of sandstone are moderately to highly fractured; fracture spacing decreases with depth. The siltstones are gray-brown to gray, massive to thinly bedded and weak. The siltstone locally grades to clayey siltstone and claystone.

Groundwater

At the time of subsurface work groundwater has been encountered between 12 to 30 feet below the ground surface. In general, the shallow groundwater was encountered locally within areas of

colluvium or deeply weathered bedrock. This water appears to be perched on the underlying bedrock. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation and other factors. Future irrigation may cause an overall rise in groundwater levels.

Seismic Sources

The seismicity of the Bay Area is dominated by the major active strike-slip faults. No State of California-zoned active[1] faults are mapped crossing the GHAD property. The nearest State of California-zoned, active[2] faults are the Calveras fault located approximately 1 mile northeast of the site and the Hayward Fault located approximately 6 miles southwest of the site. The Dublin fault, a local strike-slip fault that passes 2,500 feet east of the property, is not considered active by the State..

The Working Group on Northern California Earthquake Probabilities (WGEP, 2003) recently evaluated the seismicity of the Bay Area. The WGEP estimated a 30-year probability of a moment magnitude (M_w) 6.7 earthquake on one of the active Bay Area Faults of 62 percent. The 30-year probability of a 6.7 M_w earthquake for the Calaveras and Hayward Faults were estimated at 11 percent and 27 percent, respectively. As discussed in the geotechnical investigations, there is a high probability that the site and any improvements will be subject to strong ground shaking and some deformation of the site slopes during the lifetime of the project.

[1] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 10,000 years) (Hart, 1994). The State of California has prepared maps designating zones for special studies that contain these active earthquake faults.