LEONA QUARRY GHAD BOARD
AGENDA REPORT

TO: Office of the City Administrator
ATTN: Deborah Edgerly
FROM: Leona Quarry GHAD Officers
DATE: May 3, 2005

RE: AGENDA REPORT ON THE LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT RE: (1) APPROVAL OF MINUTES OF THE MARCH 15 MEETING (2) APPROVAL OF THE ANNEXATION OF FOUR LOTS ON CAMPUS DRIVE INTO THE LEONA QUARRY GHAD, (3) APPROVAL OF AMENDMENT 1 TO THE PLAN OF CONTROL FOR THE LEONA QUARRY GHAD, (4) ACCEPTANCE OF THE CANVASS OF VOTES, AND (5) CONFIRMATION OF THE ASSESSMENT, AND ORDERING THE LEVY AND COLLECTION OF THE ASSESSMENT

SUMMARY

The Leona Quarry Geologic Hazard Abatement District (GHAD) Board met on March 15 and adopted the first set of resolutions to make the GHAD fully operational. The second (and last) set of resolutions to make the GHAD fully operational are presented to the Board in this report. On March 15, the GHAD Board set a hearing for May 3 to consider comments on 1) the proposed annexation of four lots into the GHAD boundaries, 2) Amendment 1 to the Plan of Control, and 3) the proposed assessment.

At the May 3 hearing, the GHAD Board will 1) hear and consider any objections to the proposed annexation of four lots into the GHAD boundaries, 2) hear and consider any comments on Amendment 1 to the Plan of Control, and 3) hear and consider any protests against the proposed assessment. If a majority of the property owners within the GHAD boundaries protest against the assessment, the GHAD Board is precluded by law from ordering the assessment. There is only one property owner within the GHAD boundaries. On March 18, 2005, a ballot was mailed to the property owner asking the owner if it approves or disapproves of the assessment. The ballot will be presented to the GHAD Board at its meeting on May 3.

FISCAL IMPACT

None. The GHAD is a self-sustaining entity. Costs for the maintenance and operations of the GHAD will be recovered through the assessment on the properties within the GHAD boundaries.

BACKGROUND

On March 15, the GHAD Board adopted the following five resolutions in an effort to make the GHAD fully operational:

Resolution No. 1:

- Election/Appointment of Henry Chang as the Chairperson of the Leona Quarry Geologic Hazard Abatement District (GHAD) Board;
- Appointing Richard Clark, of Danville Associates, as the Interim GHAD Treasurer/Clerk;
- Appointing ENGEO, Inc. as the Interim GHAD General Manager;
- Appointing Patricia E. Curtin as the Interim GHAD Attorney;
- Authorizing the Chairperson to negotiate and enter into a contract with Richard Clark for Interim Treasurer/Clerk services; and
- Authorizing the Treasurer/Clerk to negotiate and enter into contracts for GHAD General Manager services and GHAD Attorney Services.

Resolution No. 2 Accepting Petition and Setting a Public Hearing for Annexation of Four Lots into the Existing Leona Quarry GHAD.

Resolution No. 3 Accepting Amendment 1 to the Leona Quarry Geologic Hazard Abatement District Plan of Control and Setting a Public Hearing to Consider Objections on Proposed Amendments.

Resolution No. 4 Approving Leona Quarry Geologic Hazard Abatement District (GHAD) Budget.

Resolution No. 5 of Intention to Order an Assessment for the Leona Quarry Geologic Hazard Abatement District (GHAD) and Setting Hearing Date for a Public Hearing to Consider the Proposed Assessment and Protests Against the Assessment.

On March 18 copies of the notices for the May 3 hearing and the notice of the proposed assessment and other documents (including the ballot on the assessment) were mailed to the property owner as required by law.

The recommended actions to be taken on May 3 are necessary to make the GHAD fully operational. The GHAD Board took the first set of actions on March 15 and one of the actions was the scheduling of this May 3 hearing.

KEY ISSUES AND IMPACTS

The purpose of the GHAD is to prevent, mitigate, control, or abate defined geologic hazards within the Leona Quarry Project. GHAD financing is accomplished through an assessment of only the property owners that are located within the GHAD boundaries. The GHAD may also issue and service bonds, notes, or other debentures. The City Council and GHAD Board have already concluded that a GHAD is an appropriate tool for this Project for the following reasons:

- The remaining steep slopes of the site and the potential instability along the western edge;

- The importance of proper site drainage to minimize slope instability problems; and

- The high level of care needed to maintain and monitor the site with regard to slope stability, vegetation and fire management, and the ability to act immediately with adequate resources should a problem occur.

SUSTAINABLE OPPORTUNITIES

Economic: The GHAD will provide services in a responsible manner for the community where they are needed.

Environmental: The formation of a GHAD is not a project subject to the California Environmental Quality Act ("CEQA"). State law exempts GHADs from CEQA. Pub. Res. Code §26559. The implementation of the GHAD will result in better protection of private property and the appropriation of adequate resources to manage potential geotechnical, drainage, and other potential geologic issues. A comprehensive set of sustainability measures have been incorporated into the conditions of approval for the Leona Quarry Project, including the provision of solar energy, through a layer of photovoltaic panels located on the main, south facing slope, for the complete power needs of fifteen percent of the units.

Social Equity: The GHAD will create a safer environment where the open space and recreational features on the site will be maintained safely and appropriately.

DISABILITY AND SENIOR CITIZEN ACCESS

The formation of the GHAD will not affect the provision of adequate access for the disabled community or senior citizens. However, the Leona Quarry Project conditions of approval have a $500,000 substitution provision for a 54-unit affordable senior housing project in District 6.

RECOMMENDATION

Staff recommends that the GHAD Board take the following actions:

1. Approve the minutes of the March 15 GHAD Board Meeting;

2. Open and hold the public hearing on the proposed annexation;

3. Close the hearing and consider any objections to the annexation;

4. Adopt the Resolution Approving Annexation of Four Lots on Campus Drive into the Leona Quarry Geologic Hazard Abatement District (Note: The City Council, as the legislative body that ordered formation of the GHAD, must also approve the annexation; this action is recommended by City Staff at this hearing. Pub. Res. Code §26564);

5. Open and hold the public hearing on Amendment 1 to the Plan of Control and the proposed assessment;

6. Close the hearing and consider any objections to Amendment 1 of the Plan of Control and protests against the assessment;

7. Adopt the Resolution Approving Amendment No. 1 to the Plan of Control;

8. Direct the GHAD Clerk to open and tabulate the assessment ballots;

9. Adopt the Resolution Accepting the Canvass of Votes; and

10. Adopt the Resolution Confirming the Assessment and Ordering the Levy and Collection of the Assessment. The GHAD Clerk shall then cause to be recorded a Notice of Assessment, where upon the assessment shall attach a lien upon the property.

ACTION REQUESTED BY THE GHAD BOARD

GHAD staff recommends that the GHAD Board accept the Agenda Report and take the appropriate action as specified herein to make the GHAD fully operational.

Respectfully submitted,

PATRICIA E. CURTIN
Interim GHAD Attorney

Reviewed by:
Richard Clark, Interim GHAD Treasurer/Clerk

ATTACHMENTS:

1. Minutes of the March 15 GHAD Board Meeting.

Item: _____

2. Resolution Approving the Annexation of Four Lots on Campus Drive into the Leona Quarry Geologic Hazard Abatement District.

   Attachment:

   - Petition for Annexation with (1) Boundary Map, (2) Legal Description, (3) Amendment 1 to Plan of Control (dated March 9, 2005).

3. Resolution Approving Amendment 1 to the Leona Quarry Geologic Hazard Abatement District Plan of Control.

   Attachment:

   - Amendment 1 to the Plan of Control dated March 9, 2005.

4. Resolution Accepting Canvass of Votes for the Leona Quarry Geologic Hazard Abatement District (GHAD).

5. Resolution Confirming Assessment for the Leona Quarry Geologic Hazard Abatement District (GHAD) and Ordering Levy and Collection Thereof.

   Attachment:

   - Engineer's Report dated February 23, 2005.
   - Notice of Assessment.

MINUTES FOR MARCH 15, 2005

LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT

BOARD OF DIRECTORS MEETING

Board members present: Jane Brunner (Dist.1), Vacant (Dist. 2), Nancy Nadel (Dist. 3), Jean Quan (Dist. 4), Desley Brooks (Dist.6), Larry Reid (Dist. 7), Henry Chang (At-Large) and Ignacio De La Fuente (Dist. 5).

Item S-15.1 on the Supplemental Meeting Agenda (March 15, 2005) for the concurrent meeting of the Oakland Redevelopment Agency/City Council/Geologic Hazard Abatement District Board.

Subject: Leona Quarry Geologic Hazard Abatement District (GHAD)
From: Public Works Agency
Recommendation: Adopt the following pieces of legislation:

1) A Resolution (a) election/appointment of the Chairperson of the Leona Quarry Geologic Hazard Abatement District (GHAD) Board; (b) appointing Richard Clark, of Danville Associates, or such other person as the GHAD Boards appoints, as the Interim GHAD Treasurer/Clerk; (c) appointing Engeo, Inc., or such other entity/person as the GHAD Board appoints, as the Interim GHAD General Manager; (d) appointing Patricia E. Curtin, or other such other attorney as the GHAD Board appoints, as the Interim GHAD Attorney; (e) authorizing the Chairperson to negotiate and enter into a contract with Richard Clark or such other person as the GHAD appoints as Interim Treasurer/Clerk; and (f) authorizing the Treasurer/Clerk to negotiate and enter into contracts for GHAD general manager services and GHAD attorney services. **(Adopted as Resolution No. 1)**

2) A Resolution accepting Petition and Setting a Public Hearing for Annexation of Four Lots into Existing Leona Quarry GHAD. **(Adopted as Resolution No. 2)**

3) A Resolution accepting Amendment 1 to the Leona Quarry Geologic Hazard Abatement District Plan of Control and Setting a Public Hearing to Consider Objections on Proposed Amendments. **(Adopted as Resolution No. 3)**

4) A Resolution approving Leona Quarry Geologic Hazard Abatement District (GHAD) Budget. **(Adopted as Resolution No. 4)**

5) A Resolution of intention to Order an Assessment for the Leona Quarry Geologic Hazard Abatement District (GHAD) and Setting Hearing Date for a Public Hearing to Consider the Proposed Assessment and Protests Against the Assessment. **(Adopted as Resolution No. 5)**

A motion was made by Councilmember Brooks, seconded by Councilmember Reid to approve all five resolutions (Resolution Nos. 1 through 5). Resolution No. 1 was adopted with the following changes: 1) elect/appoint Councilmember Henry Chang as the

Chairperson of the Leona Quarry GHAD, 2) appoint Richard Clark as the Interim GHAD Treasurer/Clerk, 3) appoint Engeo, Inc as the Interim GHAD General Manager, and 4) appoint Patricia Curtin as the Interim GHAD Attorney. No other changes were made to the resolutions. The motion carried by the following vote:

Votes: GHAD Boardmember Ayes: 7 – Boardmember Nadel, Boardmember Brunner, Boardmember Quan, Boardmember De la Fuente, Boardmember Brooks, Boardmember Reid, and Chairperson Chang.

No individuals from the public spoke on this item.

14.2

ORA/COUNCIL

MAY 3 - 2005

BOARD OF DIRECTORS
LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT

RESOLUTION NO. _____

RESOLUTION APPROVING ANNEXATION OF FOUR LOTS ON CAMPUS DRIVE INTO THE LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT

WHEREAS, on December 3, 2002, the Oakland City Council adopted Resolution No. 77545, approving and ordering the formation of the Leona Quarry Geologic Hazard Abatement District (GHAD) and appointing itself to act as the Board of Directors of the GHAD (GHAD Board).

WHEREAS, this resolution is made pursuant to Division 17 (Sections 26500 *et seq.*) of the Public Resources Code.

WHEREAS, on March 15, 2005, the GHAD Board was presented with the Petition for Annexation of Territory to the Leona Quarry Geologic Hazard Abatement District (GHAD Petition) (attached as Exhibit A), including Amendment 1 to the Plan of Control for the Leona Quarry GHAD (Plan of Control).

WHEREAS, on March 15, 2005, the GHAD Board adopted Resolution No. 2 accepting the petition and setting a hearing on the petition for May 3, 2005 at 7:00 p.m. at Council Chambers, 1 Frank Ogawa Plaza, Oakland, California. Notice of the hearing was given in accordance with Public Resources Code sections 26562 through 26563.

WHEREAS, a public hearing before the GHAD Board on the proposed annexation was held on May 3, 2005. At the time set for the hearing, no owner of real property to be annexed to the GHAD had made a written objection to its annexation in accordance with the provisions of Public Resources Code section 26564. At the hearing, the owners of more than 50 percent of the assessed valuation of the property to be annexed to the GHAD did not object to the annexation.

WHEREAS, the GHAD Board closed the hearing and, by this Resolution, adopted on May 3, 2005, ordered the annexation of the four lots to the GHAD, as described in the GHAD Petition.

NOW, THEREFORE, the GHAD Board hereby resolves and orders that:

1. The GHAD Board hereby approves the annexation of the four lots to the Leona Quarry GHAD as described in the Petition.

14.2
ORA/COUNCIL
MAY 3 - 2005

2. This Resolution shall become effectively immediately upon its passage and adoption.

OAKLAND, CALIFORNIA, _____

PASSED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST: _____
Clerk of the GHAD Board

Attachments: Exhibit A (Petition for Annexation of Territory)

14.2
ORA/COUNCIL
MAY 3 - 2005

Exhibit A

PETITION FOR ANNEXATION OF TERRITORY TO THE LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT PURSUANT TO DIVISION 17 (commencing with section 26500) OF THE PUBLIC RESOURCES CODE OF THE STATE OF CALIFORNIA

TO: The Clerk of the Leona Quarry Geologic Hazard Abatement District ("GHAD")

The undersigned owner of land within the boundaries of the territory to be annexed to the GHAD hereby requests that the Board of Directors of the GHAD initiate proceedings to annex territory described in Exhibits A and B, further referenced hereafter, to the GHAD pursuant to the provisions of Division 17 of the Public Resources Code sections 26500 *et seq.* Said owner is the owner of all the territory proposed to be annexed.

(a) This petition is made pursuant to Division 17 of the Public Resources Code with particular reference to Article 3 (commencing with Section 26550) and Article 4 (commencing with Section 26561).

(b) Opposite the signature of the petitioner is an indication of the lot, tract and map number or other legal description sufficient to identify the signature of the petitioner as that of an owner of land within the territory proposed to be annexed to the GHAD.

(c) Opposite the signature of the petitioner is an indication of the date on which said petitioner's signature was affixed to this petition.

(d) The following documents are attached to this petition and are incorporated herein by this reference as if set forth in full in the petition:

1. A map of the boundaries of the territory proposed to be annexed to the GHAD (Exhibit A);

14.2

ORA/COUNCIL

MAY 3 - 2005

2. A legal description of the boundaries of the territory proposed to be annexed to the GHAD (Exhibit B); and

3. Amendment 1 to the Leona Quarry Plan of Control prepared by an engineering geologist certified pursuant to Section 7822 of the California Business and Professions Code, which describes in detail geologic hazards, their location and the area affected thereby, and a plan for their prevention, mitigation, abatement and control (Exhibit C).

Dated March 10, 2005

Leona LLC

Albert D. Seeno III
Owner of Land

See legal description attached as Exhibit B.

Exhibit A

Boundary Map

Exhibit A

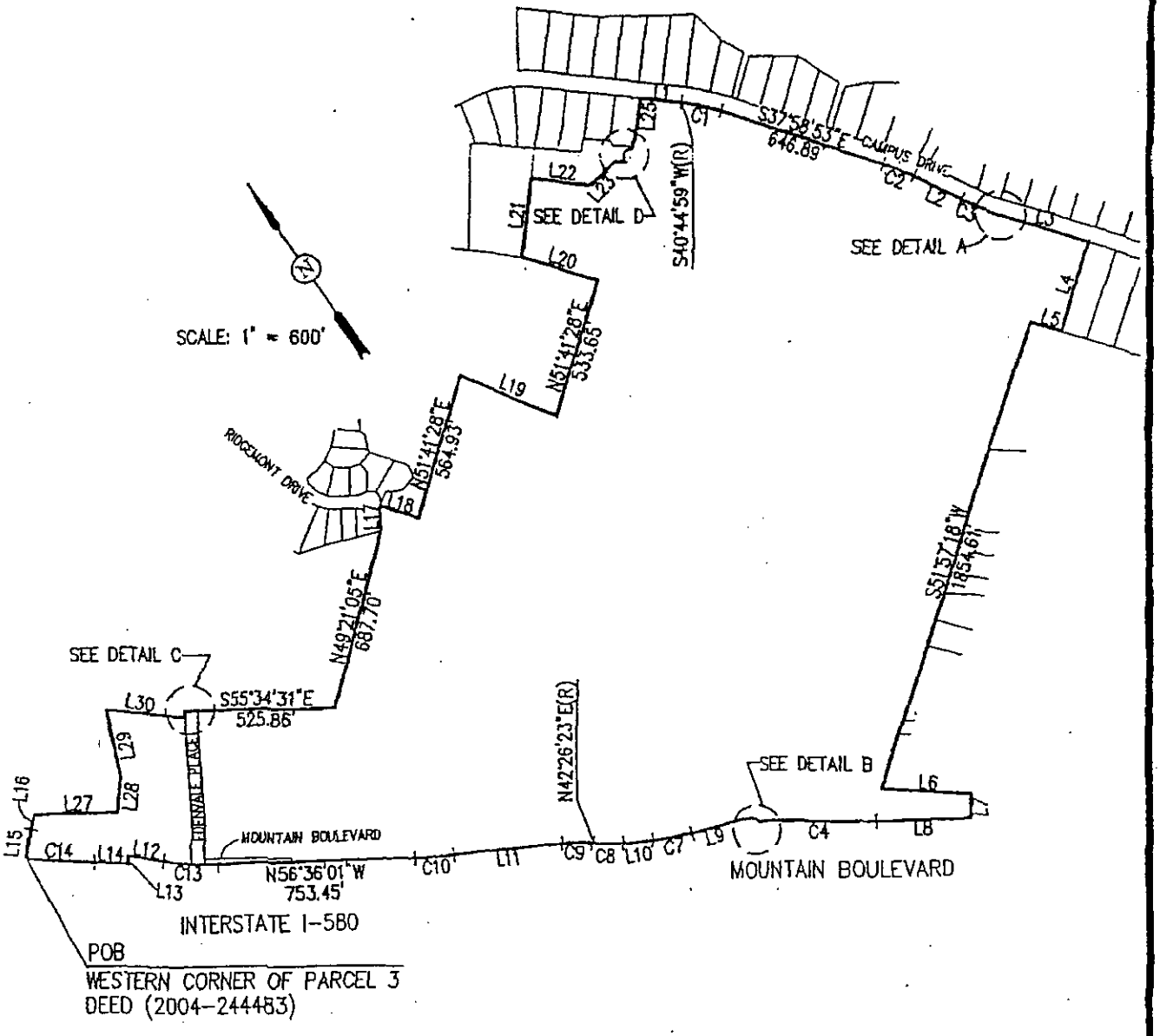


FIGURE 1

PLAT TO ACCOMPANY LEGAL DESCRIPTION

G.H.A.D. BOUNDARY

CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

DATE: AUGUST 2004

SHEET 1 OF 2

Carlson, Barbee, & Gibson, Inc.

CIVIL ENGINEERS • SURVEYORS • PLANNERS

6111 BOLLINGER CANYON ROAD, SUITE 150 SAN RAMON, CALIFORNIA 94583

TELEPHONE: (925) 866-0322 FAX: (925) 866-8575

G:/1020/ACAD/PLATS/PLAT-06.DWG

Exhibit B

Legal Description

Exhibit B

AUGUST 11, 2004
JOB NO.: 1020-00

LEGAL DESCRIPTION
GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)
LEONA PROPERY
OAKLAND, CALIFORNIA

REAL PROPERTY, SITUATE IN THE INCORPORATED TERRITORY OF THE CITY OF OAKLAND, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEING ALL OF THAT CERTAIN PARCEL OF LAND GRANTED TO LEONA, LLC, BY DEED RECORDED JUNE 2, 2004, IN DOCUMENT NO. 2004-244483 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF ALAMEDA COUNTY, AND BEING ALL OF CROWN RIDGE COURT, AS SAID CROWN RIDGE COURT IS SHOWN AND SO DESIGNATED ON THE AMENDED MAP, TRACT 5018, RECORDED FEBRUARY 11, 1988, IN BOOK 175 OF MAPS AT PAGE 1, IN SAID OFFICE OF THE COUNTY RECORDER OF ALAMEDA COUNTY, AND BEING ALL OF EDENVALE PLACE, AS SAID EDENVALE PLACE IS SHOWN AND SO DESIGNATED ON THAT CERTAIN PARCEL MAP NO. 7106, RECORDED DECEMBER 1, 1997, IN BOOK 232 OF PARCEL MAPS AT PAGE 88, IN SAID OFFICE OF THE COUNTY RECORDER OF ALAMEDA COUNTY, AND BEING A PORTION OF MOUNTAIN BOULEVARD, AS SAID MOUNTAIN BOULEVARD IS SHOWN AND SO DESIGNATED ON THAT CERTAIN MAP ENTITLED "LEONA HEIGHTS ADDITION," RECORDED FEBRUARY 27, 1925, IN BOOK 4 OF MAPS AT PAGE 64, IN SAID OFFICE OF THE COUNTY RECORDER OF ALAMEDA COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE WESTERN CORNER OF PARCEL THREE, AS SAID PARCEL THREE IS DESCRIBED IN SAID DEED (2004-244483);

THENCE, FROM SAID POINT OF BEGINNING, ALONG THE BOUNDARY LINE, THE FOLLOWING FIFTY-THREE (53) COURSES:

1) NORTH 41°14'29" EAST 110.65 FEET,

2) NORTH 50°02'49" EAST 58.46 FEET,

3) SOUTH 55°28'54" EAST 316.09 FEET,

4) NORTH 41°07'43" EAST 136.86 FEET,

5) NORTH 23°07'33" EAST 261.93 FEET,

6) SOUTH 49°47'02" EAST 298.00 FEET,

7) NORTH 31°20'49" EAST 23.54 FEET,

8) SOUTH 58°07'51" EAST 50.00 FEET,

9) SOUTH 55°34'31" EAST 525.86 FEET,

10) NORTH 49°21'05" EAST 687.70 FEET,

29) ALONG THE ARC OF A TANGENT 730.00 FOOT RADIUS CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 10°22'59", AN ARC DISTANCE OF 132.29 FEET,

30) SOUTH 52°00'20" WEST 1.00 FEET,

31) SOUTH 37°59'40" EAST 371.73 FEET,

32) SOUTH 52°04'51" WEST 349.00 FEET,

33) NORTH 37°59'40" WEST 124.69 FEET,

34) SOUTH 51°57'18" WEST 1,854.61 FEET,

35) SOUTH 51°03'42" EAST 328.48 FEET,

36) SOUTH 37°06'48" WEST 93.00 FEET,

37) NORTH 56°17'57" WEST 346.14 FEET,

38) ALONG THE ARC OF A TANGENT 7,958.61 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 02°46'18", AN ARC DISTANCE OF 385.00 FEET,

39) ALONG THE ARC OF A REVERSE 210.02 FOOT RADIUS CURVE TO THE LEFT, FROM WHICH THE CENTER OF SAID CURVE BEARS SOUTH 36°28'21" WEST, THROUGH A CENTRAL ANGLE OF 13°34'36", AN ARC DISTANCE OF 49.77 FEET,

40) ALONG THE ARC OF A NON-TANGENT 42.00 FOOT RADIUS CURVE TO THE LEFT, FROM WHICH THE CENTER OF SAID CURVE BEARS SOUTH 84°42'52" WEST, THROUGH A CENTRAL ANGLE OF 64°33'32", AN ARC DISTANCE OF 47.32 FEET,

41) NORTH 69°50'40" WEST 225.02 FEET,

42) ALONG THE ARC OF A TANGENT 962.07 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 08°56'53", AN ARC DISTANCE OF 150.25 FEET,

43) NORTH 60°53'47" WEST 110.81 FEET,

44) ALONG THE ARC OF A TANGENT 508.04 FOOT RADIUS CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 13°20'10", AN ARC DISTANCE OF 118.25 FEET,

45) ALONG THE ARC OF A REVERSE 492.04 FOOT RADIUS CURVE TO THE LEFT, FROM WHICH THE CENTER OF SAID CURVE BEARS SOUTH 42°26'23" WEST,

Parcel name: GHAD

North: 9456.7293 East : 7597.9310

Line Course: N 41-14-29 E Length: 110.65
North: 9539.9314 East : 7670.8752

Line Course: N 50-02-49 E Length: 58.46
North: 9577.4720 East : 7715.6889

Line Course: S 55-28-54 E Length: 316.09
North: 9398.3533 East : 7976.1296

Line Course: N 41-07-43 E Length: 136.86
North: 9501.4411 East : 8066.1495

Line Course: N 23-07-33 E Length: 261.93
North: 9742.3236 East : 8169.0230

Line Course: S 49-47-02 E Length: 298.00
North: 9549.9132 East : 8396.5801

Line Course: N 31-20-49 E Length: 23.54
North: 9570.0171 East : 8408.8261

Line Course: S 58-07-51 E Length: 50.00
North: 9543.6180 East : 8451.2888

Line Course: S 55-34-31 E Length: 525.86
North: 9246.3373 East : 8885.0548

Line Course: N 49-21-05 E Length: 687.70
North: 9694.3176 East : 9406.8258

Line Course: N 33-51-34 E Length: 95.01
North: 9773.2145 East : 9459.7613

Line Course: S 38-18-32 E Length: 156.87
North: 9650.1217 East : 9557.0052

Line Course: N 51-41-28 E Length: 564.93
North: 10000.3223 East : 10000.2945

Line Course: S 32-37-35 E Length: 401.98
North: 9661.7731 East : 10217.0256

Line Course: N 51-41-28 E Length: 533.65
North: 9992.5831 East : 10635.7702

Line Course: N 38-18-32 W Length: 300.70
North: 10228.5364 East : 10449.3660

Line Course: N 41-34-59 E Length: 296.00
North: 10449.9428 East : 10645.8227

Line Course: S 48-25-01 E Length: 225.00
North: 10300.6092 East : 10814.1214

Line Course: N 84-18-52 E Length: 130.97
North: 10313.5842 East : 10944.4471

Line Course: S 51-31-37 E Length: 41.79
North: 10287.5847 East : 10977.1646

Curve Length: 64.23 Radius: 25.00
Delta: 147-11-42 Tangent: 84.93
Chord: 47.97 Course: N 49-46-20 E
Course In: N 66-10-29 E Course Out: N 33-22-11 E
RP North: 10297.6834 East : 11000.0341
End North: 10318.5619 East : 11013.7851

Curve Length: 14.27 Radius: 10.00
Delta: 81-47-12 Tangent: 8.66
Chord: 13.09 Course: N 82-28-35 E
Course In: N 33-22-11 E Course Out: S 48-25-01 E

Delta: 64-33-32 Tangent: 26.53
Chord: 44.86 Course: N 37-33-54 W
Course In: S 84-42-52 W Course Out: N 20-09-20 E
RP North: 7948.8904 East : 9927.7365
End North: 7988.3184 East : 9942.2084
Line Course: N 69-50-40 W Length: 225.02
North: 8065.8535 East : 9730.9685
Curve Length: 150.25 Radius: 962.07
Delta: 8-56-53 Tangent: 75.28
Chord: 150.10 Course: N 65-22-14 W
Course In: N 20-09-20 E Course Out: S 29-06-13 W
RP North: 8969.0069 East : 10062.4691
End North: 8128.4064 East : 9594.5274
Line Course: N 60-53-47 W Length: 110.81
North: 8182.3033 East : 9497.7081
Curve Length: 118.25 Radius: 508.04
Delta: 13-20-10 Tangent: 59.39
Chord: 117.98 Course: N 54-13-42 W
Course In: N 29-06-13 E Course Out: S 42-26-23 W
RP North: 8626.1990 East : 9744.8139
End North: 8251.2717 East : 9401.9813
Curve Length: 115.56 Radius: 492.04
Delta: 13-27-25 Tangent: 58.05
Chord: 115.30 Course: N 54-17-19 W
Course In: S 42-26-23 W Course Out: N 28-58-58 E
RP North: 7888.1522 East : 9069.9458
End North: 8318.5718 East : 9308.3621
Line Course: N 61-01-02 W Length: 416.40
North: 8520.3371 East : 8944.1098
Curve Length: 154.81 Radius: 2008.15
Delta: 4-25-01 Tangent: 77.44
Chord: 154.77 Course: N 58-48-31 W
Course In: N 28-58-58 E Course Out: S 33-23-59 W
RP North: 10276.9972 East : 9917.1523
End North: 8600.4921 East : 8811.7125
Line Course: N 56-36-01 W Length: 472.34
North: 8860.5043 East : 8417.3792
Line Course: N 56-36-01 W Length: 281.11
North: 9015.2488 East : 8182.6944
Curve Length: 209.91 Radius: 1208.09
Delta: 9-57-19 Tangent: 105.22
Chord: 209.64 Course: N 51-40-13 W
Course In: N 33-21-07 E Course Out: S 43-18-26 W
RP North: 10024.3775 East : 8846.8785
End North: 9145.2670 East : 8018.2374
Line Course: N 46-41-34 W Length: 135.31
North: 9238.0775 East : 7919.7742
Line Course: S 34-19-40 W Length: 32.55
North: 9211.1969 East : 7901.4183
Line Course: N 51-50-59 W Length: 131.94
North: 9292.6997 East : 7797.6616
Curve Length: 258.47 Radius: 5959.45
Delta: 2-29-06 Tangent: 129.26
Chord: 258.45 Course: N 50-36-26 W
Course In: N 38-09-01 E Course Out: S 40-38-07 W
RP North: 13979.1710 East : 11478.9699
End North: 9456.7204 East : 7597.9282

Parcel name: GHAD

North: 9456.7293 East : 7597.9310
Line Course: N 41-14-29 E Length: 110.65
North: 9539.9314 East : 7670.8752
Line Course: N 50-02-49 E Length: 58.46
North: 9577.4720 East : 7715.6889
Line Course: S 55-28-54 E Length: 316.09
North: 9398.3533 East : 7976.1296
Line Course: N 41-07-43 E Length: 136.86
North: 9501.4411 East : 8066.1495
Line Course: N 23-07-33 E Length: 261.93
North: 9742.3236 East : 8169.0230
Line Course: S 49-47-02 E Length: 298.00
North: 9549.9132 East : 8396.5801
Line Course: N 31-20-49 E Length: 23.54
North: 9570.0171 East : 8408.8261
Line Course: S 58-07-51 E Length: 50.00
North: 9543.6180 East : 8451.2888
Line Course: S 55-34-31 E Length: 525.86
North: 9246.3373 East : 8885.0548
Line Course: N 49-21-05 E Length: 687.70
North: 9694.3176 East : 9406.8258
Line Course: N 33-51-34 E Length: 95.01
North: 9773.2145 East : 9459.7613
Line Course: S 38-18-32 E Length: 156.87
North: 9650.1217 East : 9557.0052
Line Course: N 51-41-28 E Length: 564.93
North: 10000.3223 East : 10000.2945
Line Course: S 32-37-35 E Length: 401.98
North: 9661.7731 East : 10217.0256
Line Course: N 51-41-28 E Length: 533.65
North: 9992.5831 East : 10635.7702
Line Course: N 38-18-32 W Length: 300.70
North: 10228.5364 East : 10449.3660
Line Course: N 41-34-59 E Length: 296.00
North: 10449.9428 East : 10645.8227
Line Course: S 48-25-01 E Length: 225.00
North: 10300.6092 East : 10814.1214
Line Course: N 84-18-52 E Length: 130.97
North: 10313.5842 East : 10944.4471
Line Course: S 51-31-37 E Length: 41.79
North: 10287.5847 East : 10977.1646
Curve Length: 64.23 Radius: 25.00
Delta: 147-11-42 Tangent: 84.93
Chord: 47.97 Course: N 49-46-20 E
Course In: N 66-10-29 E Course Out: N 33-22-11 E
RP North: 10297.6834 East : 11000.0341
End North: 10318.5619 East : 11013.7851
Curve Length: 14.27 Radius: 10.00
Delta: 81-47-12 Tangent: 8.66
Chord: 13.09 Course: N 82-28-35 E
Course In: N 33-22-11 E Course Out: S 48-25-01 E

RP North: 10326.9133 East : 11019.2855
End North: 10320.2762 East : 11026.7654
Line Course: N 41-34-59 E Length: 187.36
North: 10460.4205 East : 11151.1172
Line Course: S 48-25-01 E Length: 158.94
North: 10354.9312 East : 11270.0034
Curve Length: 151.44 Radius: 770.00
Delta: 11-16-08 Tangent: 75.97
Chord: 151.20 Course: S 43-36-57 E
Course In: S 40-44-59 W Course Out: N 52-01-07 E
RP North: 9771.6037 East : 10767.3813
End North: 10245.4659 East : 11374.3035
Line Course: S 37-58-53 E Length: 646.89
North: 9735.5803 East : 11772.4031
Curve Length: 121.26 Radius: 670.00
Delta: 10-22-12 Tangent: 60.80
Chord: 121.10 Course: S 32-47-47 E
Course In: S 52-01-07 W Course Out: N 62-23-19 E
RP North: 9323.2586 East : 11244.3020
End North: 9633.7850 East : 11837.9967
Line Course: S 27-36-41 E Length: 197.00
North: 9459.2210 East : 11929.3007
Curve Length: 132.29 Radius: 730.00
Delta: 10-22-59 Tangent: 66.33
Chord: 132.11 Course: S 32-48-11 E
Course In: N 62-23-19 E Course Out: S 52-00-20 W
RP North: 9797.5557 East : 12576.1621
End North: 9348.1786 East : 12000.8706
Line Course: S 52-00-20 W Length: 1.00
North: 9347.5630 East : 12000.0826
Line Course: S 37-59-40 E Length: 371.73
North: 9054.6136 East : 12228.9140
Line Course: S 52-04-51 W Length: 349.00
North: 8840.1360 East : 11953.5954
Line Course: N 37-59-40 W Length: 124.69
North: 8938.4005 East : 11876.8381
Line Course: S 51-57-18 W Length: 1854.61
North: 7795.4411 East : 10416.2827
Line Course: S 51-03-42 E Length: 328.48
North: 7588.9968 East : 10671.7819
Line Course: S 37-06-48 W Length: 93.00
North: 7514.8345 East : 10615.6663
Line Course: N 56-17-57 W Length: 346.14
North: 7706.8926 East : 10327.6965
Curve Length: 385.00 Radius: 7958.61
Delta: 2-46-18 Tangent: 192.54
Chord: 384.96 Course: N 54-54-48 W
Course In: N 33-42-03 E Course Out: S 36-28-21 W
RP North: 14328.0267 East : 14743.5832
End North: 7928.1721 East : 10012.6918
Curve Length: 49.77 Radius: 210.02
Delta: 13-34-36 Tangent: 25.00
Chord: 49.65 Course: N 60-18-57 W
Course In: S 36-28-21 W Course Out: N 22-53-45 E
RP North: 7759.2861 East : 9887.8482
End North: 7952.7594 East : 9969.5579
Curve Length: 47.32 Radius: 42.00

Delta: 64-33-32 Tangent: 26.53
Chord: 44.86 Course: N 37-33-54 W
Course In: S 84-42-52 W Course Out: N 20-09-20 E
RP North: 7948.8904 East : 9927.7365
End North: 7988.3184 East : 9942.2084
Line Course: N 69-50-40 W Length: 225.02
North: 8065.8535 East : 9730.9685
Curve Length: 150.25 Radius: 962.07
Delta: 8-56-53 Tangent: 75.28
Chord: 150.10 Course: N 65-22-14 W
Course In: N 20-09-20 E Course Out: S 29-06-13 W
RP North: 8969.0069 East : 10062.4691
End North: 8128.4064 East : 9594.5274
Line Course: N 60-53-47 W Length: 110.81
North: 8182.3033 East : 9497.7081
Curve Length: 118.25 Radius: 508.04
Delta: 13-20-10 Tangent: 59.39
Chord: 117.98 Course: N 54-13-42 W
Course In: N 29-06-13 E Course Out: S 42-26-23 W
RP North: 8626.1990 East : 9744.8139
End North: 8251.2717 East : 9401.9813
Curve Length: 115.56 Radius: 492.04
Delta: 13-27-25 Tangent: 58.05
Chord: 115.30 Course: N 54-17-19 W
Course In: S 42-26-23 W Course Out: N 28-58-58 E
RP North: 7888.1522 East : 9069.9458
End North: 8318.5718 East : 9308.3621
Line Course: N 61-01-02 W Length: 416.40
North: 8520.3371 East : 8944.1098
Curve Length: 154.81 Radius: 2008.15
Delta: 4-25-01 Tangent: 77.44
Chord: 154.77 Course: N 58-48-31 W
Course In: N 28-58-58 E Course Out: S 33-23-59 W
RP North: 10276.9972 East : 9917.1523
End North: 8600.4921 East : 8811.7125
Line Course: N 56-36-01 W Length: 472.34
North: 8860.5043 East : 8417.3792
Line Course: N 56-36-01 W Length: 281.11
North: 9015.2488 East : 8182.6944
Curve Length: 209.91 Radius: 1208.09
Delta: 9-57-19 Tangent: 105.22
Chord: 209.64 Course: N 51-40-13 W
Course In: N 33-21-07 E Course Out: S 43-18-26 W
RP North: 10024.3775 East : 8846.8785
End North: 9145.2670 East : 8018.2374
Line Course: N 46-41-34 W Length: 135.31
North: 9238.0775 East : 7919.7742
Line Course: S 34-19-40 W Length: 32.55
North: 9211.1969 East : 7901.4183
Line Course: N 51-50-59 W Length: 131.94
North: 9292.6997 East : 7797.6616
Curve Length: 258.47 Radius: 5959.45
Delta: 2-29-06 Tangent: 129.26
Chord: 258.45 Course: N 50-36-26 W
Course In: N 38-09-01 E Course Out: S 40-38-07 W
RP North: 13979.1710 East : 11478.9699
End North: 9456.7204 East : 7597.9282

Line Course: N 40-38-07 E Length: 0.00
North: 9456.7204 East : 7597.9282

Perimeter: 13653.16 Area: 5,841,954 sq.ft. 134.11 acres

Mapcheck Closure - (Uses listed courses, radii, and deltas)
Error Closure: 0.0094 Course: S 17-20-16 W
Error North: -0.00896 East : -0.00280
Precision 1: 1,452,461.70

Exhibit C

Amendment 1 to the Leona Quarry Plan of Control

Exhibit C

ENGEO INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
WATER RESOURCES
CONSTRUCTION SERVICES

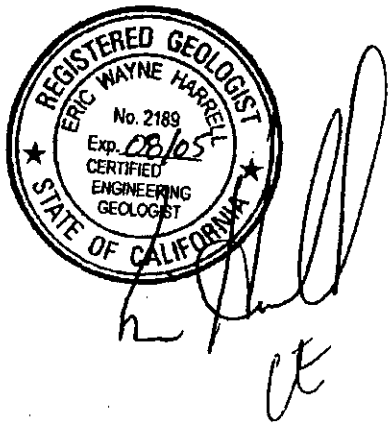
AMENDMENT 1 TO THE PLAN OF CONTROL FOR LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)

OAKLAND, CALIFORNIA

SUBMITTED

TO

LEONA, LLC



PREPARED

BY

ENGEO INCORPORATED

PROJECT NO. 5188.1.001.02

AUGUST 13, 2004
LATEST REVISION MARCH 9, 2005

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

I. Authority and Scope

The Oakland City Council formed the Leona Quarry Geologic Hazard Abatement District ("GHAD" or "District") on December 3, 2002, (Resolution 77544) under authority of the California Public Resources Code (Division 17, commencing with Section 26500). Formation of the Leona Quarry GHAD was accomplished in accordance with Condition of Approval No. 24 for the Leona Quarry Project.

Development of a Plan of Control, prepared by a California Certified Engineering Geologist, is a requirement for formation or amendment 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 in detail the geologic hazards, their location, and who is affected by them. It also provides a framework for the prevention, mitigation, abatement, and control of identified or potential geologic hazards. 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. In accordance with the requirements of the Public Resources Code, a proposed revision to the original Leona Quarry Plan of Control was submitted with the petition to annex the additional properties into the Leona Quarry GHAD. The scope of this Plan of Control and its implementation are described in more detail in Sections II, IV, VII, IX and X, below.

Property Identification

The proposed GHAD boundary is shown on Figure 1.

II. Background

The subject property is located northeast of the MacArthur Freeway (Interstate 580) at its intersection with Edwards Avenue, in Oakland, California. The site is about 133.2 acres in area and extends between the freeway and Campus Drive to the northeast and southwest, respectively (the "GHAD Property"). The GHAD Property includes all of the subdivided property shown on the Tracts 7351, 7492 and 7493, as well as approximately five acres of adjacent property owned by the Petitioner which is part of the overall slope stability and grading plan, although these adjacent parcels are not part of the subdivided property.

Pregraded Site Conditions

The GHAD Property is located on a southwest-facing hillside slope that had been extensively altered by quarrying operations. The excavation and filling work from the quarrying operations have resulted in slopes with typical gradients of about 1½:1 (horizontal:vertical) with some portions of the upper slopes in a nearly vertical condition. The flatter portions of the site were located in the southwestern portion of the site adjacent to the freeway. A ridge running northwest to southeast through the subject property divided the quarry pit from the lower portion of the site. Elevations ranged from a low of about 300 feet above mean sea level (msl) adjacent to Edwards Avenue to a high of about 1,075 feet above msl at the northern corner adjacent to Campus Drive.

Proposed Development

The Vesting Tentative Tract Map and Preliminary Grading Plan for the subject property, including Tracts 7351, 7492 and 7493, developed by Carlson, Barbee and Gibson, show that a total of 19 single family units and 404 multi-family units are to be developed. In addition, four

more single-family units will be constructed on parcels adjacent to Tracts 7351, 7492 and 7493 that are included within the GHAD. A Geotechnical Investigation was completed for the Leona Quarry site by Berlogar Geotechnical Consultants (BCG) and dated May 15, 2003, and supplemental letters. The four parcels proposed for annexation into the Leona Quarry GHAD were not included within the 2003 BCG Geotechnical Investigation report.

Grading plans for the subject site show that the lower half of the site will be developed to create building pads for 404 multi-family units. In addition to the residential building pads, streets, a detention basin and a community center are planned. Above the lower development area and below the 23 single-family lots along Campus Drive a 2:1 (horizontal:vertical) slope, up to approximately 450 in vertical height, is planned. A majority of the northern slope above the lower residential area will be substantially rebuilt as an engineered fill slope. Benches with concrete-lined ditches and storm drain systems are shown on both the northern and eastern rebuilt slopes.

A number of retaining walls are shown on the proposed grading plan. Included in the geotechnical investigation report are design recommendations for modular block walls, potential soil nail walls and conventional concrete walls. Final grading work at the site will have been completed prior to acceptance of the property by the GHAD.

Recommendations in the BGC Geotechnical Investigation include provisions for 7 settlement plates, 7 piezometers and 2 inclinometers. It is our understanding that additional settlement plates have been installed and are being monitored at the site. In addition, there are currently plans for 1 additional piezometer. It is anticipated in the geotechnical report that monitoring of the interim settlement plates will be performed during the residential construction period only. In addition, there will be approximately five dozen permanent survey monuments in streets for post-construction settlement monitoring. A monitoring schedule is described in the BGC report

for the piezometers and inclinometers and we understand that supplemental monitoring recommendations may be developed. We expect that the GHAD will continue a monitoring program for instruments as described in the Monitoring and Maintenance section.

Open Space

Title to Parcels A, C, E, F, R and X of the VTM and the adjacent parcels owned by the Petitioner, most of which is open space (the "Open Space Property"), 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.

The GHAD will mitigate, prevent, abate or repair landslide or erosion hazards that could directly affect the GHAD Property, as necessary to implement this Plan of Control. The GHAD also will assume other responsibilities that are required by the Conditions of Approval for the Leona Quarry Project. These responsibilities will include vegetation management, habitat management, erosion control, vegetation removal (fire suppression), trail maintenance, irrigation and selected other maintenance associated with open space. In addition, maintenance, repair and replacement of detention ponds or creek improvements (only for the portion of Chimes Creek within the GHAD Property), including vegetation control and armoring of channels and desilting of detention basins, will be the responsibility of the GHAD.

The GHAD will assume monitoring and maintenance responsibilities for the following as appropriate.

- Detention basin on Parcel "C", including structures, vegetation and sediment removal

- Concrete-lined drainage ditches
- Storm drain inlets, outfalls and pipelines within the streets and open space areas
- Subdrains
- Debris bench maintenance
- Piezometers and inclinometers
- Settlement monuments
- Street sweeping
- Rock catchment fences
- Trail maintenance including trash removal
- Potential Alameda County Whipsnake habitat – fencing and sign maintenance
- Emergency vehicle access and maintenance roads
- Erosion management

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 BGC reports and discussed below.

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. Regional geologic maps of the area have been prepared by Radbruch (1969), Crane (1988) and Graymer (2000). The most recent regional map prepared by Graymer indicates that the site is underlain by Late Jurassic-age keratophyre and quartz keratophyre consisting of highly altered intermediate and silicic lavas and dike rocks.

Site Geology

With the exception of the southwestern portion of Tract 7351 and the four parcels adjacent to Tract 7351, detailed mapping of the property included within the GHAD boundaries was completed as part of the Geotechnical Investigations completed by Berlogar Geotechnical Consultants. The results of their investigations are included in the geologic descriptions.

The majority of the site has been altered by quarrying operations, which have resulted in the alteration of natural slopes and placement of artificial fills. Artificial fills on the site were documented in the BGC borings to be up to 90 feet in thickness. The thickest fills were encountered in the former Chimes Creek Ravine and in the southwestern portion of the site in the quarry floor adjacent to Interstate 580 and in the central quarry pit. Other fill areas, of lesser thickness, are located across the site and along Campus Drive.

Nilsen (1975) maps colluvium deposits in the west-southwestern portion of the site within two swales; one of which is located along the edge of the quarrying operations and the other in the area along Edenvale Place.

One landslide was mapped on the northern portion of the site adjacent to Ridgemont Drive (Nilsen, 1975). Nilsen's mapping does not include areas within the actively quarried portion of the site. Berlogar undertook more specific aerial photograph interpretations with field reconnaissance and subsurface explorations to map slope instabilities on the site. The BGC geology map shows five landslides within or adjacent to the quarried area. The treatments for these landslides are described below. Detailed mapping completed at the site by BGC, in general, shows beds striking to the northwest and dipping to the northeast.

Geologic Units

The geologic units mapped on the site include bedrock and surficial deposits consisting of artificial fill, colluvium, and landslides that are described below. The geologic units were described in the BGC Preliminary Geotechnical Investigation for the Leona Quarry dated September 26, 2000, and the BCG Geotechnical Investigation for the subject site dated May 15, 2003.

Artificial Fill. Artificial fill consisted predominately of rock fragments in a silty or sandy clay matrix. Some lenses of gravel were identified within the fill.

Colluvium. Mantling the unquarried bedrock and filling swales are colluvial deposits. These sediments are derived from weathering of the underlying bedrock and consist mostly of silty clay. This material generally is moderately expansive and has low strength. Where colluvium is

located on sloping ground, it may be characteristically unstable. 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 soil slips, earth flows, debris slides, areas of shallow slumps and gullying, large predominantly rotational slumps, and translational slides.

Shallow (less than 5 feet thick) to moderately deep (5 to 15 feet thick) earth flows and soil slips 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 15 feet) landslides were also identified at the site.

Bedrock at the site was identified as the following (adapted from Berlogar):

Bedrock Type	Color	Strength	Fracturing	Weathering	Comments
Leona Rhyolite (Rh1)	Tan-Brown	Moderately Strong to Strong	Moderate to Crushed	Moderate to high	Some breccia zones and softer tuffaceous material.
Leona Rhyolite (Rh2)	Blue Gray to Gray	Moderately Strong to Strong	Moderate to Crushed	Slight to Moderate	Some fractures filled with tan-brown clay and soft tuffaceous material. Partially altered.
Rhyolite/Tuff Breccia (Rh/Tf)	White to Tan Brown	Friable	High to Crushed	High	--
Tuff (Tf)	White to Red-Brown	Friable to Weak	--	--	Inclusions of strong rhyolite and welded tuff.
Welded Tuff	White to Red-Brown	Moderately Strong	--	--	Small amounts mapped on northeast slope.
Knoxville Shale (Sh)	Dark Brown to Black	Friable to Weak	High	High	Moderately Sheared

Groundwater

At the time of subsurface work and as measured later by BGC, groundwater has been encountered between 2 to 190 feet below the ground surface. Artesian flow of groundwater has been observed in one boring located below a retention pond, but BGC has represented this as an artificial local condition. In general, the shallow groundwater conditions were encountered in the upper bowl and lower fill areas. 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

No faults are mapped by Crane 1998 or Graymer 2000 crossing the site. The nearest State of California-zoned, active[1] fault is the Hayward fault located about 1,000 feet southwest of the site. 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.

IV. Geologic Hazards

Geologic hazards identified for the site in the BGC reports include the following items.

- Slope instability
- Seismically-induced ground shaking
- Rockfall

Slope Instability

During mapping for the Geotechnical Investigation, five landslides were identified on the subject site. The geologic map showing the location of each of the landslides is included as Figure 2. The table below identifies each of the landslide areas and the proposed corrective measures. Potential GHAD monitoring or maintenance activities for the specific areas listed in the table below are discussed in Section VII.

Landslide Designation	Location	Proposed Corrective Measures	Unremediated Areas
A	North slope below Ridgemont Drive.	Complete removal.	None
B	West side of main quarry slope.	Removal of the lower portion of the landslide during design grading and construction of a catchment area.	Landslide material above the catchment area to remain.
C	Middle of main quarry slope.	Landslide material to be removed and replaced with engineered fill.	None
D	Lower quarry slope.	Removal of the landslide during design grading.	None
E	Lower quarry slope.	Removal of the landslide during design grading.	None

In addition to the landslides listed above, other areas of slope instability or landsliding will likely be identified during the life of the development. Since earth stability is the GHAD's prime geotechnical concern, this section describes several types of slope instability that may be within the GHAD's area of responsibility, subject to Section V of this Plan of Control. Slope instability is not unique to this project, but is of importance for hillside projects throughout the San Francisco Bay Area. Future stability of these areas depends on various factors, including any introduction of natural or artificial groundwater, future grading and earthquake ground shaking.

The cuts will be viewed by the Leona Quarry Project geologist during grading to provide mitigation schemes for unsuspected slope conditions which could decrease the slope stability. Such conditions include unfavorable bedrock attitudes and seepage conditions. A field-verified geologic map will be prepared by the project geologist for use by the GHAD.

A licensed land surveyor will record the location and elevation of subdrains and outlets. Each landslide subexcavation then will be reconstructed to final grade by keying and benching below the landslide plane with compacted, drained, engineered fill.

A landslide is defined as a mass of rock, soil and other debris that has been displaced downslope by sliding, flowing, or falling. Landslides include cohesive block glides and disrupted slumps that have formed by displacement along a planar slip surface or rotation (displacement along a curved slip surface). Undercutting and erosion of hillside slopes trigger many slope failures.

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.

Areas of thicker soil cover on the hillslopes are known as colluvium (Qc). 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 ten to fifteen 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.

Five erosion gullies were identified on the subject site in the geotechnical investigation prepared by BCG. The erosion gullies are located on the northwest slope. As proposed, the gullies would be filled during construction of a planned 2:1 (horizontal:vertical) engineered fill slope or be cleared of loose soil and the resulting depressions would be backfilled with engineered fill or riprap after the installation of a subdrain system.

Seismically-Induced Ground Shaking

As identified in the geotechnical report, 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 BGC remedial grading plans for all engineered fill slopes. On unimproved open space slopes, seismically-generated slope failures may occur in open-space areas outside the development limits.

Rockfall

The potential for rockfalls has been identified on the subject site in the BGC Geotechnical Investigation report for the natural, quarry-altered and engineered fill slopes. As stated in the BGC report, rockfalls would most likely occur during earthquakes, but natural rock weathering, unusual rainfall events, freezing of water in the rock joints in natural rock outcrops or human activity could also cause or contribute to rockfalls at the site. Maintenance of the proposed rockfall barriers, one of the mitigation measures proposed to protect improvements on the site, as discussed in the in the Monitoring and Maintenance Section (Section X).

It is important to note that to preserve the natural topography, wildlife habitat, and vegetation of the site; stabilization of landslide masses is currently planned only for landslides that directly threaten the proposed improvements. Slope and creek instability in undisturbed open space parcels, which in the GHAD manager's opinion does not have the potential to affect directly the GHAD-accepted homesites, roadways, or other improvements will not be repaired, as provided in Section V.

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 developed areas of the projects. As used herein, the term "site improvements" means buildings and outbuildings, roads, sidewalks, improved paths, utilities, improved trails, swimming pools, tennis courts, gazebos, cabanas, geologic stabilization features, or similar improvements.

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 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 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.

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 VII, below. The GHAD however, may monitor, abate, mitigate or control slope instability on a parcel of real property which (1) the GHAD has not accepted in accordance with Section VII, below, and (2) that is not excluded from GHAD responsibility by Paragraphs 1 and 2; provided 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 a residence, or any other structure, site improvement or landscaping is damaged or destroyed due to, or as a result of, a geologic hazard, the GHAD may fund, or reimburse the property owner for the expenses necessary to repair or replace the damaged or destroyed structure, 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.

Slope Revegetation Plan Monitoring and Maintenance

The developer of the site will be responsible for all activities included in the Maintenance Section of the Leona Quarry Revegetation Plan (Appendix B) prepared by H. T. Harvey and Associates until the mitigation plan is judged to be successful. At a minimum the maintenance and monitoring program is required for 5 years.

The responsible party will supply in writing to the Leona Quarry GHAD, prior to the time of transfer, a report stating that the revegetated open space areas are in compliance with the recommendations and requirements of the approved maintenance and monitoring plan. The report shall be prepared under the direction of and signed by a qualified botanist as defined in the Leona Quarry Mitigation, Monitoring and Reporting program.

At the discretion of the GHAD, and prior to the transfer for the monitoring and maintenance responsibility of the revegetated open space areas, the GHAD may inspect the areas independently and will advise the responsible party, in writing, of any deficiencies that might exist to facilities that are to be maintained by the GHAD. Any deficiencies will be corrected

prior to the GHAD accepting maintenance or monitoring responsibilities for the revegetated open space areas.

VI. Acceptance

Activation of Assessment

An annual assessment shall be fully authorized, prior to recordation of the first 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 each Final Map within the boundaries of the GHAD is recorded in the Official Records of Alameda County, owns the developable parcels shown on that Final Map shall have the responsibility to perform all the activities of the GHAD on property within that 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 two years after completion and city approval of the GHAD-maintained improvements. The reserve at the time of transfer will be, at a minimum, $1,000,000.00. The reserve amount will include cash and receivables from the Alameda County Tax Collector. This transfer date may be extended at the sole discretion of all 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 two-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. Leona Quarry GHAD Plan of Control

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. 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 VI.

In addition, the GHAD will be responsible for habitat and vegetation management within the open space areas including, but not limited to, weed and invasive species control, irrigation and maintenance of plants in revegetated areas which will also act as fire control and maintain the visual quality of the open space. Trails within the open space area will be maintained by the GHAD. Debris removal associated with the use of the trails and street cleaning of the subdivision's streets will also be responsibilities of the GHAD.

At the successful conclusion of the monitoring and maintenance program conditions provided in Section V and the Leona Quarry Slope Revegetation Plan included in Appendix B, the GHAD will maintain the revegetated areas in a manner which promotes slope protection, long-term slope revegetation goals and benefits property owners within the Leona Quarry GHAD.

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 storm drain inlets and outlets in open space and creek corridors and 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. Clearing of fire breaks and general maintenance of the open space (other than hazard abatement) will be performed by the GHAD. The GHAD's creek maintenance duties will include only the repair of

substantial bank failures that directly damage or threaten actual site improvements (including buildings, utilities, and roads). Such creek bank improvements, including armoring of channels with rock or other materials, will be undertaken by the GHAD as necessary, and only to abate actual or threatened impact to site improvements.

Landslide Mitigation for Existing Landslides and Erosion Features

For existing landslide areas and erosion gullies the following mitigation measures have been proposed within the geotechnical investigation report. The GHAD monitoring or maintenance activities listed in the table below are potential tasks that would occur only after GHAD acceptance of the parcels. As provided in Section VI, GHAD acceptance can occur a minimum of 2 years after the City Approval of the GHAD-Maintained Improvements. General landslide mitigation measures are shown below.

Landslide Designation	Proposed Corrective Measures	Unremediated Areas	Potential GHAD Maintenance or Monitoring Activities
Landslide A	Complete removal.	None	Routine observation during periodic site monitoring events.
Landslide B	Removal of the lower portion of the landslide during planned grading and construction of a catchment area.	Landslide material above catchment area 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.
Landslide C	Remove and replace with engineered fill.	None	Routine observation during periodic site monitoring events.
Landslide D	Removal of the landslide during design grading.	None	Routine observation during periodic site monitoring events.
Landslide E	Removal of the landslide during design grading.	None	Routine observation during periodic site monitoring events.

Landslide Designation	Proposed Corrective Measures	Unremediated Areas	Potential GHAD Maintenance or Monitoring Activities
Erosion Gullies A through D	Remove loose debris, install subdrain and backfill with riprap and/or engineered fill.	None	Routine observation during periodic site monitoring events.
Erosion Gully E	Remove loose debris, install subdrain and backfill with engineered fill.	None	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 basin, pool cabanas 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 is part of the Leona Quarry Revegetation Plan.

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.

E. Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage limited to loss of landscaping (except landscaping that is part of the site-specific revegetation plan for slope restoration) or other similar non-essential amenities.

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

Maintenance of vegetative cover in accordance with the site-specific re-vegetation plan developed by H.T. Harvey and Associates 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. It is expected that the site developer will perform the elements of the revegetation maintenance plan which is expected to occur over the first 5 years after installation. The H.T. Harvey and Associates report is included in Appendix B for future reference.

Adequate erosion protection for the slopes should be accomplished with implementation of the site-specific revegetation plan. However, if the GHAD manager determines that additional vegetation is needed for erosion protection, 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 detention basin monitoring and maintenance recommendations are included in Appendix A. 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 August or September, 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.

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. Inspections should be scheduled twice each year. 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.

- Several types of rock barrier structures are planned along the northern slope. At a minimum, repairs and maintenance should be performed according to the manufacturer's recommendations. Recommendations for the proposed GEOBRUGG products have been included in Appendix C. During the twice-yearly scheduled site monitoring events any barriers should be viewed for debris or larger rocks against the barrier and for sagging ropes. In addition, the braking elements and wire rope clips should be checked.

- 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. 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.

- Piezometers, used to measure groundwater levels, should be monitored as recommended. As recommended, the piezometers should be monitored during periods of rainfall or if potential seepage is observed in the area of the Parcel "C" Detention Basin. If future piezometers are installed they should be monitored on a regular schedule or as recommended during installation.

- Inclinometers have been recommended by BGC for the subject site. The inclinometers should be monitored annually between 3 to 5 years after installation (so long as the GHAD is responsible for monitoring activities at this time). In addition, monitoring of the inclinometers should occur when abnormally wet seasons are experienced or if surface slope deformation is observed or a significant seismic event occurs. If other inclinometers are installed they should be monitored on a regular schedule or as recommended during installation.

- As appropriate, settlement monitoring devices should be monitored on a regular schedule. In the event of anomalous readings or excessive settlement, the monitoring frequency should be increased.

- 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 basin on Parcel "C" should be monitored 4 times each year, as appropriate. The monitoring schedule should occur in January, April, July, October, and as necessary during heavy rainfall events. A more detailed schedule of monitoring items and sample monitoring report forms are included in Appendix C.

- The creek corridors should be inspected twice a year. One inspection should be in the fall prior to the onset of winter rains. A second inspection should be undertaken during the rainy season to monitor potential on-site creek bank failures which could imminently threaten or damage site improvements. The maintenance program should include the monitoring of the subdrain outfalls from the mass grading operations which may outlet to the creek or lower detention basin.

An annual inspection shall be made by the engineer and/or engineering geologist to assess the effectiveness of the instrumentation and preventive maintenance programs 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 Oakland Public Works Director and the Executive Director of the Community and Economic Development Agency.

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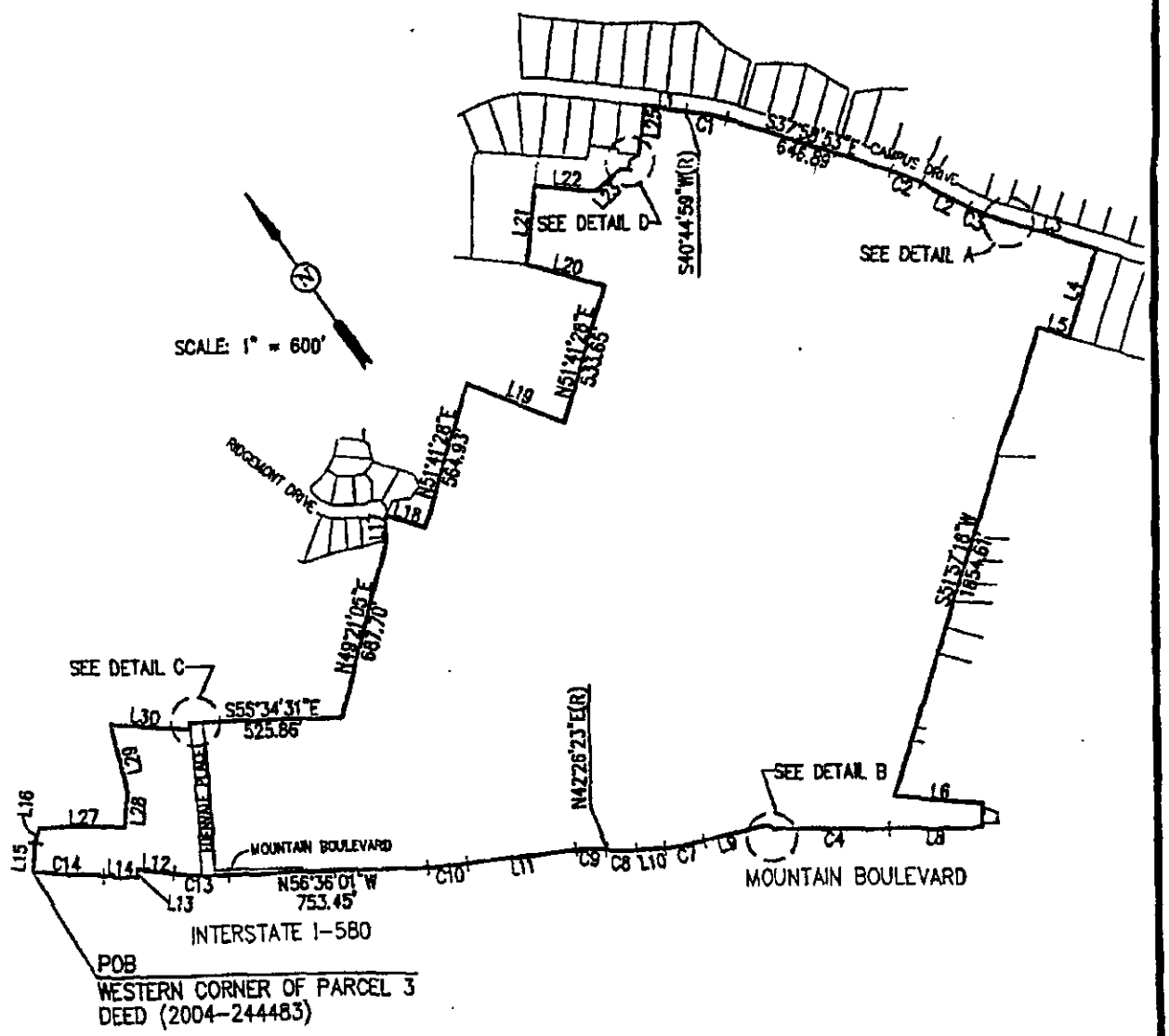

FIGURE 1

PLAT TO ACCOMPANY LEGAL DESCRIPTION

G.H.A.D. BOUNDARY

CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

DATE: AUGUST 2004

SHEET 1 OF 2

Carlson, Barbee, & Gibson, Inc.

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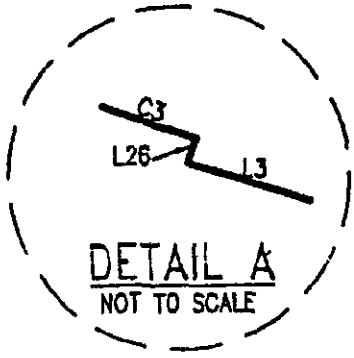
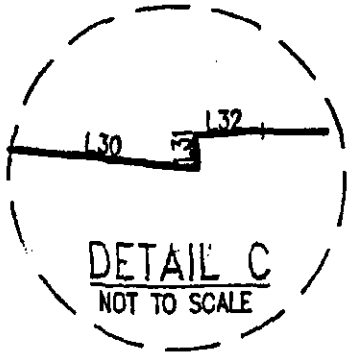


DETAIL A
NOT TO SCALE



DETAIL C
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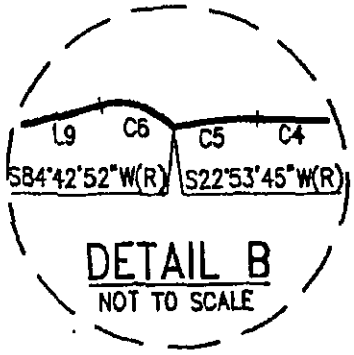
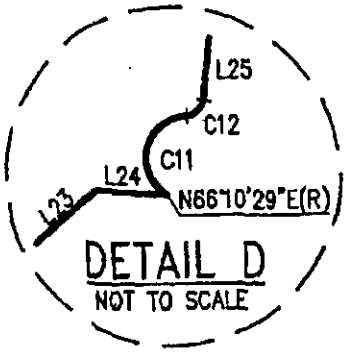


DETAIL B
NOT TO SCALE



DETAIL D
NOT TO SCALE

LINE TABLE		
NO.	BEARING	LENGTH
L1	S48°25'01"E	158.94'
L2	S27°36'41"E	197.00'
L3	S37°59'40"E	371.73'
L4	S52°04'51"W	349.00'
L5	N37°59'40"W	124.69'
L6	S51°03'42"E	328.48'
L7	S37°06'48"W	93.00'
L8	N56°17'57"W	346.14'
L9	N69°50'40"W	225.02'
L10	N60°53'47"W	110.81'
L11	N61°01'02"W	416.40'
L12	N46°41'34"W	135.31'
L13	S34°19'40"W	32.55'
L14	N51°50'59"W	131.94'
L15	N41°14'29"E	110.65'
L16	N50°02'49"E	58.46'
L17	N33°51'34"E	95.01'
L18	S38°18'32"E	156.87'
L19	S32°37'35"E	401.98'
L20	N38°18'32"W	300.70'
L21	N41°34'59"E	296.00'
L22	S48°25'01"E	225.00'
L23	N84°18'52"E	130.97'
L24	S51°31'37"E	41.79'
L25	N41°34'59"E	187.36'
L26	S52°00'20"W	1.00'
L27	S55°28'54"E	316.09'
L28	N41°07'43"E	136.86'
L29	N23°07'33"E	261.93'
L30	S49°47'02"E	298.00'
L31	N31°20'49"E	23.54'
L32	S58°07'51"E	50.00'

CURVE TABLE			
NO.	DELTA	RADIUS	LENGTH
C1	11°16'08"	770.00'	151.44'
C2	10°22'12"	670.00'	121.26'
C3	10°22'59"	730.00'	132.29'
C4	02°46'18"	7958.61'	385.00'
C5	13°34'36"	210.02'	49.77'
C6	64°33'32"	42.00'	47.32'
C7	08°56'53"	962.07'	150.25'
C8	13°20'10"	508.04'	118.25'
C9	13°27'25"	492.04'	115.56'
C10	04°25'01"	2008.15'	154.81'
C11	147°11'42"	25.00'	64.23'
C12	81°47'12"	10.00'	14.27'
C13	09°57'19"	1208.09'	209.91'
C14	02°29'06"	5959.45'	258.47'

FIGURE 1

PLAT TO ACCOMPANY LEGAL DESCRIPTION

G.H.A.D. BOUNDARY

CITY OF OAKLAND, ALAMEDA COUNTY, CALIFORNIA

DATE: AUGUST 2004

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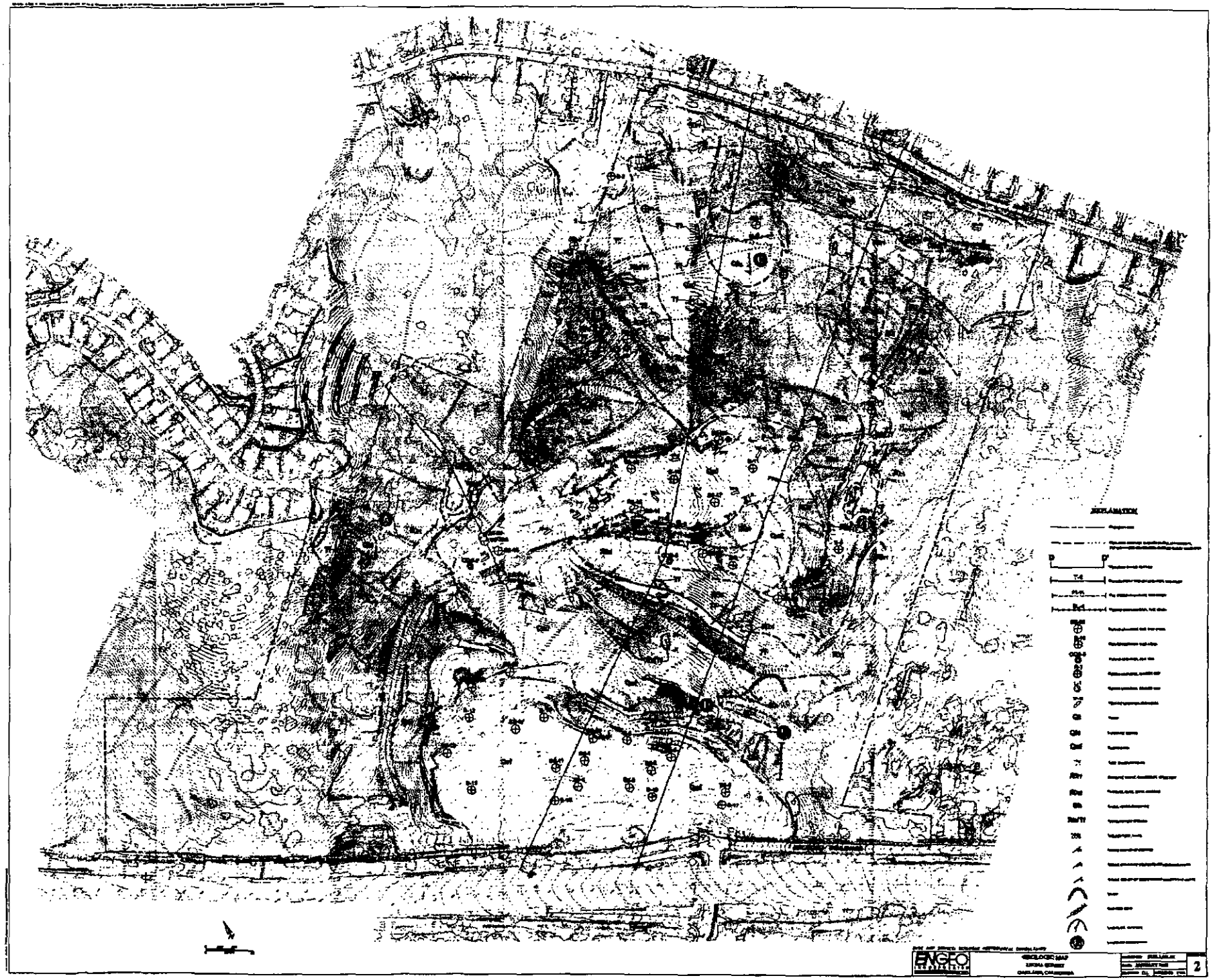
EXPLANATION
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APPENDIX A

ENGEO INCORPORATED

Detention Basin Parcel "C"
Monitoring and Maintenance
Leona Quarry, Oakland, California
August 2, 2004

5188.1.001.02
August 13, 2004
Latest Revision March 9, 2005

ENGEO INCORPORATED

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
MATERIALS TESTING

Project No.
5188.5.001.01

August 2, 2004

Mr. David Chapman
The DeSilva Group
P.O. Box 2922
Dublin, CA 94568

Subject: Water Quality/Detention Pond, Parcel "C"
Leona Quarry
Oakland, California

WATER QUALITY/DETENTION POND MONITORING AND MAINTENANCE

Dear Mr. Chapman:

As requested, we have prepared monitoring and maintenance recommendations for the Parcel "C" Water Quality/Detention Pond planned for the Leona Quarry site in Oakland, California. This is intended as a working document for use during maintenance of the detention basin. The basin is designed as a water detention facility to control peak flood flows. Maintenance of the basin will include, but not be limited to, erosion/slope protection, vegetation management, sediment removal, trash/debris removal and inspections of the inlet and outlet structures. In addition, the pond liner will be monitored and recommendations are provided for liner maintenance and groundwater monitoring. The detention basin will be owned and maintained by the Leona Quarry 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:

Eric Harrell

Reviewed by:

Uri Eliahu

eh/ue/ls:basinparcelc

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TABLE OF CONTENTS

INTRODUCTION

The purpose of this document is to provide a framework for the management and maintenance of the Parcel "C" Water Quality/Detention Pond at the Leona Quarry. Parcel "C" is located adjacent to the Mountain Boulevard on-ramp to Interstate 580 on the southwestern edge of the Leona Quarry development. As planned, the Leona Quarry site will be developed for attached and detached single-family homes, approximately 2 acres of park space and 3 recreation areas. The detention basin will be used to mitigate peak flows from the surface runoff on the subject site in addition to some storm water flows from the off-site Ridgemont Development as requested by the Alameda County Flood Control District. The detention basin design was based on results from hydrology modeling by Balance Hydrologics.

Inlets are located on the eastern and western ends of the basin, with a centrally-located outlet on the southern edge of the pond. Interior slopes for the basin are planned to be up to 24 feet high with a slope gradient of 2:1 (horizontal to vertical). A retaining wall, up to about 6 feet high, is planned around the basin at the top of the interior slope. Exterior slopes will be up to 20 feet high at a slope gradient of 2:1 (horizontal to vertical). A 10-foot-wide bench will extend around the top of the basin embankment. The basin is approximately 930 feet in length. The outlet discharges into an existing 39-inch-diameter storm drain pipeline that extends beneath Interstate 580.

We understand that the detention pond will be constructed with a 1-foot-thick layer of clay to impede the vertical migration of water. The 1-foot-thick clay liner will be overlain with a 1-foot-thick layer of soil to create the bottom of the basin. General monitoring and maintenance guidelines for a clay liner have been provided below.

Monitoring Schedule

Quarterly monitoring during January, April, July and October is planned, with additional monitoring within two working days after significant storm events (defined as 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.

The detention pond will be monitored to assure that it is self-draining with residence time that does not exceed the design criteria. The detention basin must drain within 24 hours after a rainfall event. All inlet structures will be monitored for proper functioning. Remedial procedures for the inlets should be taken immediately if the water level overtops an emergency spillway. Overtopping, or a drain time in excess of 24 hours would be indicative of silt build-up or an inoperable basin outlet structure that should be maintained/repaired to prepare for subsequent storm events.

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; therefore, 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 Water Quality/Detention Pond.
- Pruning/cutting of the vegetation within and surrounding the Detention Pond.
- Maintenance of all access roadways.
- Monitoring any perimeter fencing for public safety.
- Sediment accumulation measurement and removal.
- Detention pond liner inspection and monitoring.

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 visually inspected 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 Pond Embankment. Maintenance shall involve visual inspection of the detention pond embankment. The detention pond 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 the 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 Water Quality/Detention Pond 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 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 quarterly 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.

Desilting and Clearing of Basin. The detention basin floor 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 quarterly 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 during a quarterly sediment monitoring event, 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. To reduce potential damage to the clay liner during sediment removal no removal of material is allowed below the original design grades for the detention basin.

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. 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 Liner Inspection and Monitoring. Monitoring of the water quality/detention pond liner shall involve visual inspection of the detention basin containment area and piezometer measurement. The detention basin 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 that significantly penetrate the basin liner. It may be necessary to recompact clayey liner materials if they have been disrupted. Any observed displacement should be reported to the GHAD Manager immediately.

Piezometers should be installed adjacent to the detention basin after the completion of basin construction and prior to the first expected filling of the basin. The piezometers would allow for monitoring of the subsurface water levels and this information should be included in the quarterly monitoring reports to the GHAD Manager.

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 Leona Quarry 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 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

Leona Quarry
Oakland, California

PARCEL "C" WATER QUALITY/DETENTION POND 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? _____
Pond 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 pond 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?				

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
5. Are embankments surrounding the pond in good condition without rills or failures?				
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 pond?				
10. Do any pond 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?				

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
15. Are there remedial/repair tasks that should be undertaken in the near future?				
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.

PARCEL "A" WATER QUALITY/DETENTION POND 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

DATE	DEFICIENCY NOTED	CORRECTIVE ACTION

ENGEO
INCORPORATED

APPENDIX B

H.T. HARVEY AND ASSOCIATES

Leona Quarry Slope Revegetation Plan
(Revised in Accordance with the April 2004 Grading Plan)
Oakland, California
April 16, 2004

5188.1.001.02
August 13, 2004
Latest Revision March 9, 2005

LEONA QUARRY SLOPE REVEGETATION PLAN
(Revised in Accordance with the April 2004 Grading Plan)

H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

TABLE OF CONTENTS

FIGURES:

TABLES:

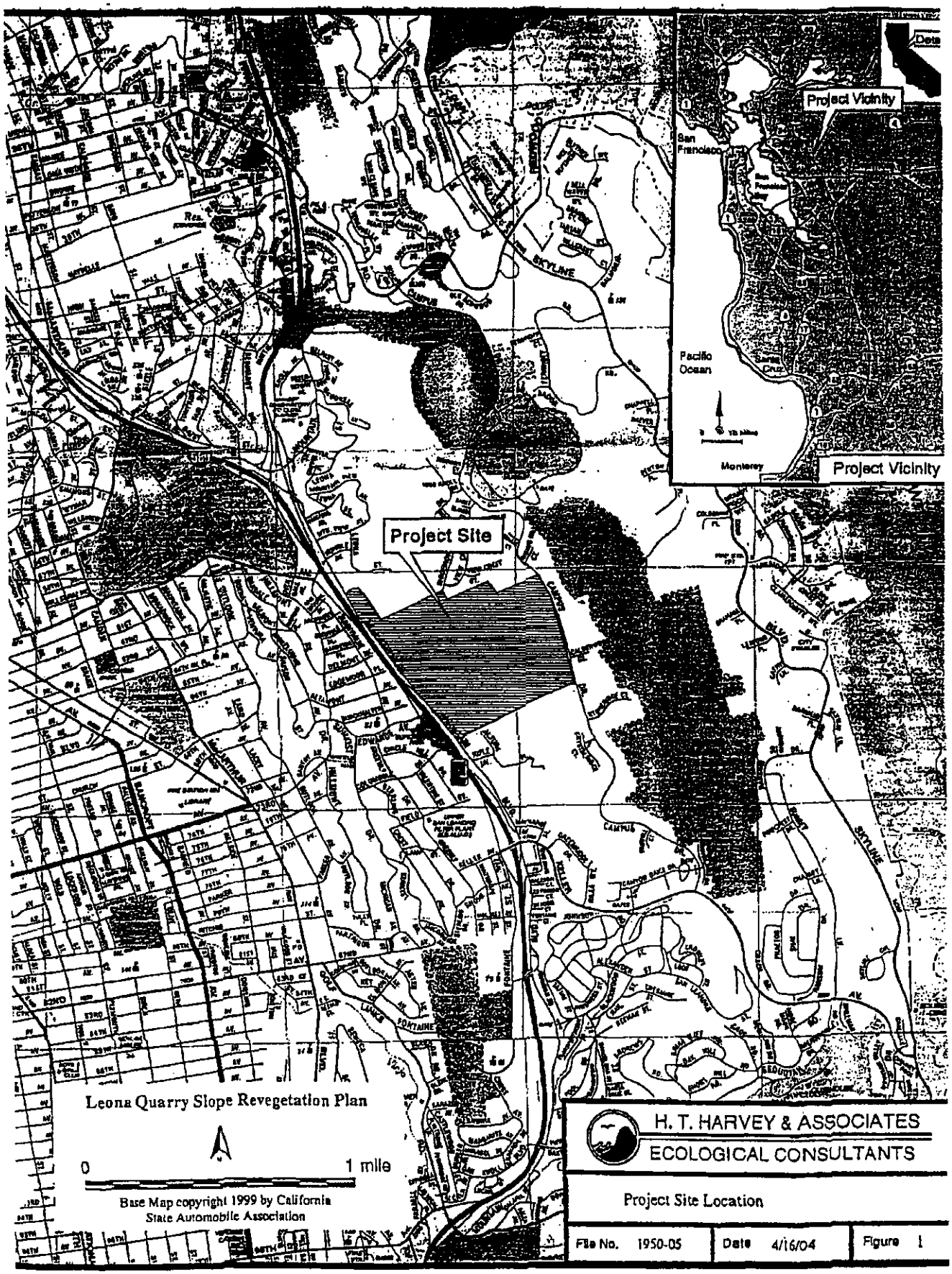
1.0 INTRODUCTION

This revegetation plan for the Leona Quarry was prepared for The DeSilva Groups' Leona Quarry project. This plan presents the revegetation design for the slope reclamation portion of the project and incorporates the most recent grading plans provided to H.T. Harvey & Associates in April 2004 by Carlson Barbee & Gibson, Inc. In addition, the plan incorporates design revisions in response to comments on slope erosion control provided by Lowney & Associates (comments dated January 30, 2004). This plan is based on the Conceptual Revegetation Plan for Reconstructed Slopes (H.T. Harvey & Associates 2001a) that was submitted to the City of Oakland as part of the project's Draft Environmental Impact Report (DEIR) (ESA 2002). In accordance with the City's Conditions of Approval #17, 18, and 21 (approved on October 23, 2002), the plan includes the following:

1. restoration of a minimum of 37 acres of habitat for Alameda Whipsnake (*Masticophis lateralis euryxanthus*) and other native species;
2. more detailed revegetation plans for the main slope that are consistent with the "Conceptual Revegetation Plan for Reconstructed Slopes" (H.T. Harvey & Associates 2001a);
3. revegetation plans for the denuded slopes along the western side of the project (Parcels C-C and D-D) that were not addressed in the "Conceptual Revegetation Plan for Reconstructed Slopes" and;
4. revegetation plans for tree replacement that are consistent with the City's Tree Ordinance and the DEIR tree replacement mitigation measures.

The Leona Quarry project site is located in southeast Oakland, Alameda County, California (Figure 1). Residential development, Highway 580 and Mountain Boulevard border the site to the south and southwest. The site extends upslope and is bordered to the northeast by Campus Drive and residential development. The Leona Heights Regional Open Space Preserve is located approximately 1.5 miles to the northeast. Relatively undisturbed sage scrub, chaparral and oak woodland vegetation border the site to the east and west. Located in the East Bay Hills, elevations at the site range from 300 feet on the southwestern portion of the quarry floor to 1067 feet along the quarry crest adjacent to Campus Drive. The Leona Quarry has been in operation as a rock quarry since the early 1900s. Throughout the life of the quarry, quarrying activities have severely altered the topography, soils and vegetation throughout the majority of the approximately 128-acre site.

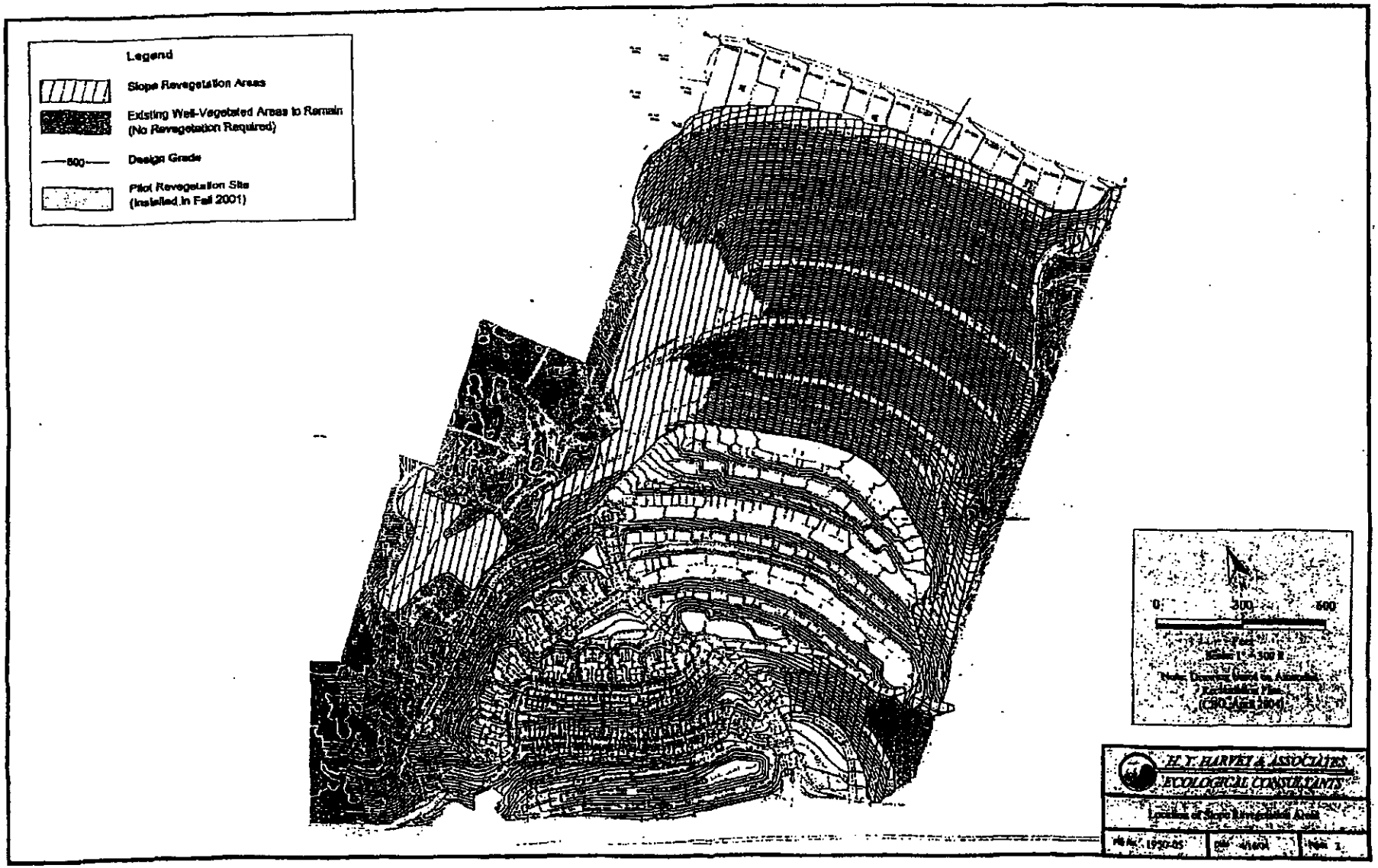
The Leona Quarry project proposes a combination of primarily residential development with quarry slope reclamation and revegetation. The majority of the proposed residential development is located in the lower elevation, southwestern portion of the site (Figure 2). The remainder of the residential units is proposed along Campus Drive at the upper elevation portion of the site. Slope reconstruction combined with revegetation is proposed for the existing steep, denuded quarry slope between Campus Drive and the lower development area in the northeast portion of the site. This approximately 37.5-acre revegetation area on reconstructed slopes is shown in Figure 2.



H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Project Site Location

File No. 1950-05	Date 4/16/04	Figure 1


Legend
Slope Revegetation Areas
Existing Well-Vegetated Areas to Remain
(No Revegetation Required)
600
Design Grade
Pilot Revegetation Site
(Installed in Fall 2001)
0
300
600
H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

Revegetation is also proposed for portions of the disturbed, unvegetated quarry slopes located beyond the limits of slope reconstruction in the northern and western portions of the site (Figure 2). This area encompasses approximately 8.1 acres.

Currently, an approximately 0.6-acre area within the northwest portion of the project site is being utilized for a pilot revegetation study (Figure 2). The primary purpose of the pilot project is to analyze vegetation response, cost-effectiveness, and relative difficulty of installation of a number of revegetation techniques (H.T. Harvey & Associates 2001b). Five experimental plots were selected for the pilot project to test the various revegetation treatments, which include two irrigation regimes, two soil amendment treatments, and two shrub seeding methods. The experimental plots consist of a tree planting plot, a shrub planting plot, a shrub broadcast seed plot, a shrub hydroseed plot, and a gully planting pocket plot. The pilot plots were installed in Fall 2001 and were subsequently monitored by H. T. Harvey & Associates in Fall 2002 and 2003. Information obtained from the first two years of monitoring was incorporated into the revegetation design presented herein.

The first year results at the pilot shrub and tree planting plots are promising. The dominant plant species, soil amendments, plant installation and maintenance techniques employed resulted in moderate to high survival and growth. Tree survival was 100% and shrub survival was 63% after the first growing season. Based on results of the Year-1 data analysis, there appears to be no significant difference between the manual irrigation treatment and the drip irrigation treatment for any species in terms of survival or growth characteristics, which included height and crown volume (H.T. Harvey & Associates 2003). California sagebrush and chamise seedlings, which received the deep plus shallow amendment treatment, performed slightly better in terms of height and crown volume than those that received only the shallow amendment treatment. These initial findings were used to assist in development of this conceptual plan (Figure 2). Additional replanting, revegetation technique experimentation, and quantitative monitoring was implemented in 2003 within the pilot revegetation plot.

This conceptual revegetation plan proposes soil preparation and revegetation techniques for the slope reconstruction area and the northern, ungraded portions of the slope (Figure 2). The boundary of the reconstructed slope revegetation area was defined by the grading limits to the east and west, the proposed lots along Campus Drive to the north, and by a 50-foot buffer from the proposed roads in the lower development area to the southwest. The boundaries of the northern, ungraded revegetation areas were defined as those areas outside the area of mass grading in the northern portion of the site, which are currently poorly vegetated. The revegetation layout and slope geometry were based the most recent grading plans (Carlson, Barbee & Gibson, Inc., April 2004). Preparation of the revegetation plan involved close coordination and collaboration with the project proponent and the project team's geotechnical engineer (Frank Berlogar of Berlogar Geotechnical Consultants) and civil engineer (Grant Gibson of Carlson, Barbee & Gibson). In addition, soil and vegetation studies were conducted in unquarried, densely vegetated reference sites and throughout the quarry site to provide a basis for the soil preparation plan and revegetation plant species palette.

2.0. EXISTING SITE CONDITIONS AND REVEGETATION PLAN GOALS

2.1 EXISTING REVEGETATION SITE CONDITIONS

The existing quarry slope to be reconstructed (regraded) and revegetated is approximately 350 to 1070 feet above mean sea level (MSL) with an overall gradient of approximately 1.5 Horizontal: 1 Vertical (1.5H:1V). The north slope is approximately 500 to 950 feet above MSL in the northeast section and 450 to 760 feet above MSL in the northwest section and also has an overall gradient of approximately 1.5 horizontal: 1 vertical (1.5H:1V). Slopes are 1H: 1V and steeper in numerous localized areas. The majority of this slope is sparsely vegetated even though historic aerial photography shows that soil disturbance from quarry activities ceased throughout much of the slope between 1988 and 1992. Poor vegetation establishment is likely due primarily to soil instability, low soil fertility, poor development of soil structure, and limited plant available water. Soil erosion and slumping events are too frequent to allow early successional plant species to gain a foothold. Berlogar (2000) observed a number of sidecast fills throughout the quarry slope that are loose and highly susceptible to erosion. Numerous erosional gullies, surficial landslides and debris fans are present (Berlogar 2000).

Scattered patches of vegetation are present and are dominated by French broom *(Genista monspessulana)*, with smaller patches of pampas grass *(Cortaderia ssp.)*. Both French broom and pampas grass are invasive, non-native species common on disturbed soils. French broom is native to the Mediterranean region and pampas grass to South America. A few small patches of arroyo willow *(Salix lasiolepis)* are present in the ephemeral drainage gullies on the slope. The occurrence of willows indicates the likely presence of ground water close to the soil surface throughout the year at these locations. Along the north portion of the slope, small patches of California sagebrush, Santa Barbara Island buckwheat (*Eriogonum giganteum* var. *compactum*) coyote brush (*Baccharis pilularis*), and grasses such as wild oats (*Avena fatua*) and pampas grass occur. Steep, rocky portions (1.5H:1V and steeper) of the north slope are sparsely vegetated with a mixture of grasses and small shrubs (especially Santa Barbara Island buckwheat) growing in small pockets of soil.

2.2 REVEGETATION PLAN GOALS

The overall goal of this conceptual revegetation plan is to establish a moderately dense cover of self-sustainable herbaceous (i.e. grasses and forbs) and woody (i.e. trees and shrubs) vegetation on the reconstructed and north slopes. In this case, the term self-sustainable refers to a self-perpetuating plant-soil system that does not require anthropogenic inputs such as fertilizer, water, or re-planting beyond an approximately 3-year plant establishment/maintenance period. Woody vegetation will be planted within localized planting areas on approximately 40% of the site, while herbaceous vegetation and shrubs will be established via seed, which will be applied throughout the majority of the reconstructed and north slopes. The most efficient means of achieving these goals is to utilize native plant species adapted to the site-specific edaphic (soil) and climatic characteristics and to provide topsoil conditions suitable for their establishment and growth.

The specific revegetation plan goals are as follows:

- control soil erosion;
- restore sustainable native plant communities within localized planting areas similar in species composition to the adjacent undisturbed habitats;
- provide a minimum of 37 acres of restored habitat for the federally-threatened Alameda Whipsnake and other native species;
- utilize existing on-site topsoil and soil amendments as necessary to provide topsoil conditions suitable for colonization by native, site-specific plant species;
- create initial soil-vegetation conditions that will promote the long-term progressive improvement of soil fertility and topsoil development;
- salvage and reuse on-site topsoil;
- minimize the need for long-term vegetation maintenance beyond a 3-year plant establishment period;
- enhance the visual appearance of the landscape;
- break up the linear, human-made appearance of the constructed benches, and;
- provide ecological connectivity across the quarry slope between adjacent undisturbed chaparral and oak woodland habitats.