PUD DESIGN GUIDELINES

A. BUILDING DESIGN

Homes shall be designed to promote a traditional rural 'farmhouse' like character. High slope gable roofs and large front and rear porches with shed roofs shall be a predominant design feature typical of this style. The home's styles shall also be typified by other traditional rural 'farmhouse' such as: wide frontages, lap siding, minimal ornamentation, and white, mullioned windows recessed into full wrap 2x wood trim.

B. BUILDING EXTERIOR ELEVATION COLORS

Colors shall be limited to light to medium earth tones for the body of the homes (for example: sand, cream, stone, or slate). Trim shall predominately be white (ex: KM 'Swiss Coffee'), with limited usage of accent colors (ex: steel blue, forest green, or deep maroon).

C. BUILDING ROOFING MATERIAL AND COLORS

Roofing material shall be limited to fireproof flat concrete tiles. Roof tile colors shall be coordinated into the overall color scheme of the house and in general shall be of a medium to dark color (ex: tan, brown, or light or dark grey). No red roof tiles shall be allowed. All vents pipes, roof jacks, etc. shall tend to be located to the rear, and shall be painted to blend with the roof color. Skylights, if used, shall be flat low profile type.

D. BUILDING SIDING MATERIALS

The building veneer shall be manufactured HardiPlank 8" lap siding (or equal) with 2x wood trimming. Any accenting shall be with stone or masonry materials. No stucco siding shall be used. The homes shall have a consistent design and level of detail on all four elevations.

E. BUILDING HEIGHTS

Interior ceilings heights shall typically be 9 ft. -10 ft. high. Single-story homes shall not exceed a maximum exterior height of 24 feet, and two-story houses shall not exceed 32 feet - measured from the finished grade at the house to the highest ridge.

F. BUILDING SETBACKS

Building setbacks shall generally conform to the following guidelines:

Front Yard to Living Area	20 feet
Front Yard to Attached Porches/Garages	15 feet
Driveway Minimum Length to Public Sidewalk	20 feet
Rear Yard to Attached Porch/Garage	15 feet
Rear Yard to Living Area	20 feet
Side Yard to Living Area	10 feet
Side Yard to Attached Porch/Garage	8 feet

Dated: Tuesday, March 8, 2011

PUD-94
EXHIBIT B

PUD DESIGN GUIDELINES

M. FENCING

All fencing shall be in keeping with a rural 'farmhouse' nature and shall be in accordance with the approved master fence design and Chapter 18.84 of the Pleasanton Municipal Code,

N. DESIGN REVIEW

All house plans shall be reviewed and approved pursuant to the City of Pleasanton's design review process pursuant to Chapter 18.20 of the Pleasanton Municipal Code.

O. GRADING AND DRAINAGE

All new grading for future development shall collect and convey all drainage onsite and direct it into a storm drainage system which releases into the Arroyo Del Valle, and shall comply with all local, state, and federal mandates for drainage control and drainage water quality. The objective of the final accepted grading plan shall be to emulate the existing grades and match up with the existing neighboring grades whenever feasible, and shall keep unavoidable grade differentials to a minimum. Grade differentials shall be accommodated by either tapered grading fill or cuts on the neighboring property if acceptable to the adjacent property owner, or in the alternate, use of wood retaining walls (not to exceed 24" in height). The grading plan shall be reviewed and approved by the Planning Director prior to the subdivision approval.

P. INFRASTRUCTURE IMPROVEMENTS

Any required new water and sanitary sewer main lines shall be constucted as needed, and connected to the existing service terminuses at the northern end of Calico Drive, and water main lines shall additionally connect to the terminus at the east end of Lynn Drive.

Any required new Storm Driange main lines shall be constructed as needed, and connected to the existing terminus at the east end of Lynn Drive.

The location and elevation of all public and private improvements shall be as reuqired by authorized and accepted geotechnical and creek bank stability analysis and recomendations for the property.

Any future public streets and right of way and infrastructure improvements shall be in reasonable and applicable conformance with the prior Nolan Farms and Richmond America project design standards (Tracts 7143 and 7002, respectively), and the prior adjacent Roselyn Estate (Tract 7534), and to City of Pleasanton standards and specifications.

Q. NEIGHBORHOOD CONTINUITY:

To the extent not specifically indicated above, all future development standards and specifications shall be in reasonable conformance and continuity with the existing prior adjacent developments.

ROSELYN ESTATES II

(7 New Home Development)

PLEASANTON, CALIFORNIA

PUD-94

PROPOSED SITING SUMMARY

Front Setback Min.- Living Space	20 Feet	Front Setback Min. -Garage/Porch	15 Feet
Side Setback Min. -Standard	10 Feet	Side Setback Min.-Corner Lot	15 Feet
Rear Setback Min - Living Space	20 Feet	Rear Setback Min.-Porch	20 Feet

PROPOSED LOT USE SUMMARY

LOT #	LOT SF	PLAN-ELEV(HAND)	LIVING SF/GARAGE SF	PORCH SF	FAR SF	FAR
1	9,905	A-1 (left)	2,635 / 587	448	2,635	26.6%
2	10,002	B-1 (right)	3,433 / 682	409	3,433	35.1%
3	10,009	B-2 (left)	3,433 / 682	409	3,433	35.1%
4	10,009	B-1 (right)	3,433 / 682	409	3,433	35.1%
5	10,003	A-2 (right)	2,635 / 587	448	2,635	26.3%
6	10,001	A-2 (left)	2,635 / 587	448	2,635	26.3%
7	10,010	A-1 (right)	2,635 / 587	448	2,635	26.3%
TOTAL	69,938		20,839 / 4,394	3,019	20,839	
HIGH	10,010		3,433 / 682	448		35.1%
LOW	9,905		2,635 / 587	409		26.3%
AVE	9,929		2,977 / 628	431		30.1%

PROPOSED LAND USE SUMMARY

SFD Residential Lots	1.606 Acres (44%)
Streets and Sidewlaks ROW	0.747 Acres (20%)
Other ROW	0.432 Acres (12%)
Arroyo Del Valle	0.913 Acres (24%)
Total Project (Gross)	3.709 Acres (100%)
Total Project (Net w/o Arroyo)	2.796 Acres (76%)

PROPOSED PROJECT SUMMARY

Total Residentiol Units	7 Units
total Gross Acres	3.71 Acres
Gross Density	1.89 Du/Ac
Total Net Acres (w/o Arroyo)	2.80 Acres
Total Net Density (w/o Arroyo)	2.50 Du/Ac
Smallest Lot Size	9,905 Sq. Ft.
Largest Lot Size	10,010 Sq. Ft.
Average Lot Size	9,929 Sq. Ft.
Average Home (Living)	3,034 Sq. Ft.
Average FAR	30.1%
Highest FAR	35.1%

ARROYO DEL VALLE CREEK

Lynn Dr

ROSELYN ESTATES I (12 Homes)

Cindy Way

Calico Ln

Rose Ln

Rose Ave

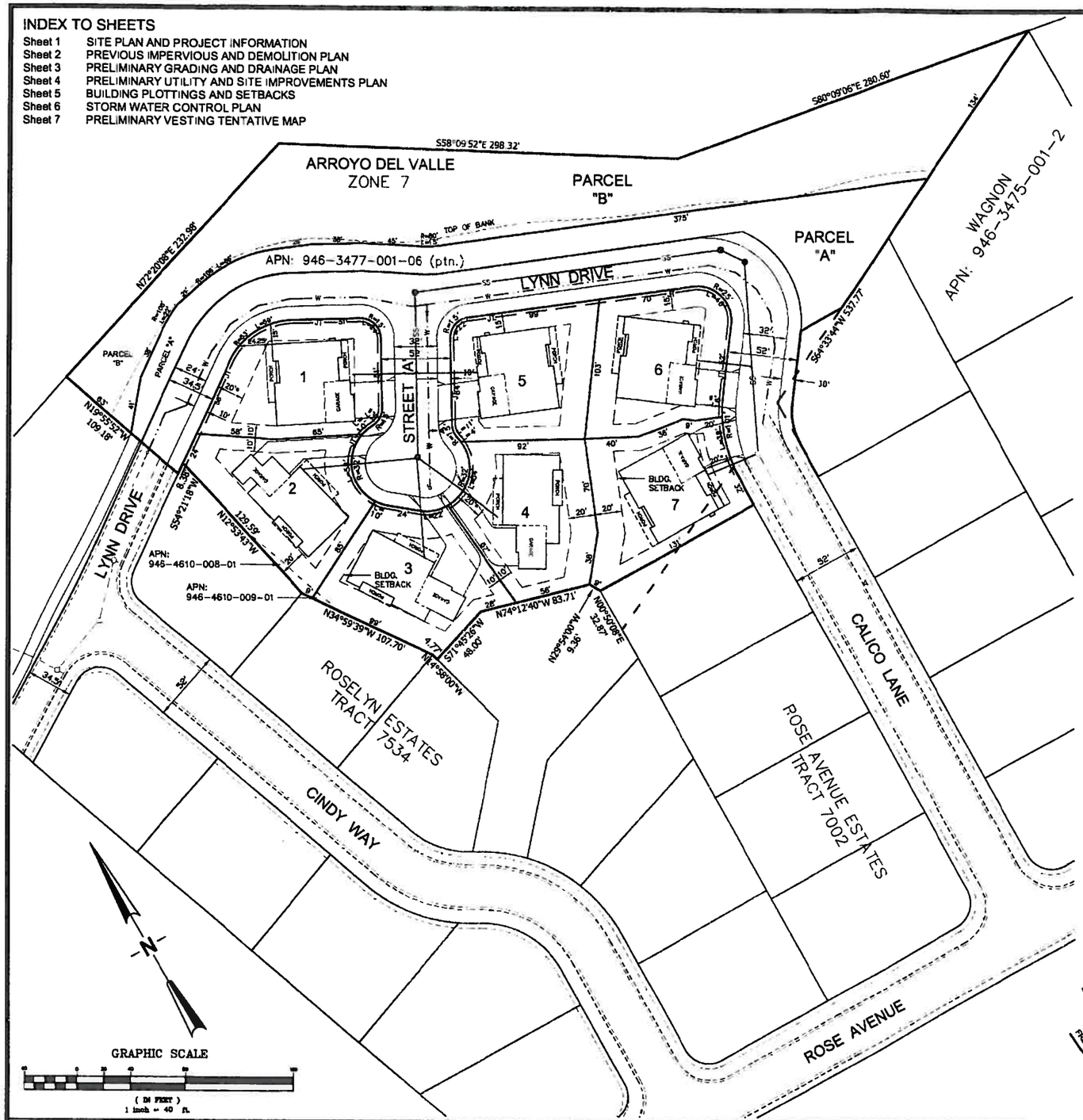
4 HOMES BUILT & SOLD 2012

ALAMEDA COUNTY FAIRGROUNDS

OWNER: ROSELYN ESTATES LLC

DEVELOPER/BUILDER: LYNN M. JANSEN
dba LYNDEN HOMES
P.O. BOX 417
DIABLO, CALIFORNIA 94528-0417

INDEX TO SHEETS



OWNER / DEVELOPER

Roselyn Estates, LLC
c/o Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417
(925) 743-8482

CIVIL ENGINEERING

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, CA 94526
(925) 743-8482

LANDSCAPE DESIGN

Thomas Baak & Associates
1620 North Main Street, Suite 4
Walnut Creek, CA 94596
(925) 933-2583

ARCHITECTURAL DESIGN

John Niceley, Architect
179 Kendall Road
Walnut Creek, CA 94595
(925) 932-6767

ROSELYN ESTATES PHASE II

RESIDENTIAL HOME PROJECT

(PUD 94 - TR 0000)

BY Lynden HOMES

PUBLIC WORKS AGENCIES

Water Service	City of Pleasanton
Sanitary Sewer	City of Pleasanton
Storm Drain	City of Pleasanton
Creek Drainage	Zone 7 Water District

OUTSIDE UTILITIES & AGENCIES

Telephone	AT&T
Gas & Electric	Pacific Gas & Electric
Cable TV	Comcast
Fire Protection	Livermore-Pleasanton Fire Dept.

EXISTING SITE INFORMATION

Address	APN	Acres	Usage	Zoning	General Plan
Parcel Map 10078 (Pcl 'B')	946-3477-001-06 (portion) 946-4610-008-01 946-4610-009-01	3.71	Residential	Residential	Medium Density Residential

PROPOSED HOMES

Plan	Quantity	Living Area	Porch	Garage	Bedrooms	Gar. Car	Dwy. Car
'A'	4	2,835 SF	448 SF	587 SF	4	3	3
'B'	3	3,433 SF	409 SF	682 SF	5	3	3
Project Totals:	7	20,839 SF	3,019 SF	4,394 SF	31	21	21

PROPOSED PROJECT SUMMARY

Total Residential Units	7 Units
Total Gross Acres	3.71 Acres
Gross Density	1.89 Acres
Total Net Acres (w/o Arroyo)	2.80 Acres
Net Density	2.50 Du/Ac
Smallest Lot Size	9,905 Sq. Ft.
Largest Lot Size	10,010 Sq. Ft.
Average Lot Size	9,991 Sq. Ft.
Average Home (Living)	2,929 Sq. Ft.
Average FAR SF	30.1 Percent
Highest FAR	35.1 Percent

PROPOSED SITING SUMMARY

Front Setback Min. - Living Space:	20 Feet
Front Setback Min. - Garage / Porch:	15 Feet
Side Setback Min. - Standard:	10 Feet
Side Setback Min. - Street 'A'	15 Feet *
Rear Setback Min. - Living Space:	20 Feet *

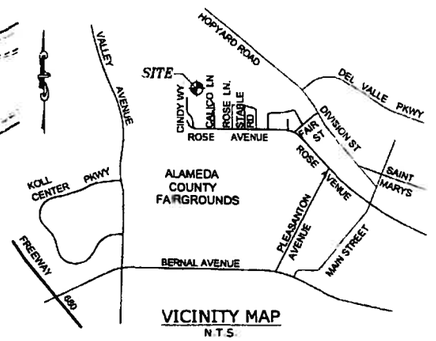
* Exceptions as indicated on Sheet 5 Building Layouts

PROPOSED LAND USE SUMMARY

SFD Residential Lots	1.606 Acres	44%
Streets & Sidewalks R-O-W	0.747 Acres	20%
Other R-O-W	0.432 Acres	12%
Arroyo Del Valle	0.913 Acres	24%
Total Project	3.709 Acres	100%

PROPOSED LANDSCAPING

Front Yard Landscaping	11,034 SF
Creekside Trail	5,432 SF
Bioswale Area	13,357 SF
24" Box Street Trees	15 Ea.
24" Box Front Yard Trees	14 Ea.
HOA Area Trees	19 Ea.



VICINITY MAP
N.T.S.

PROPOSED LOT USE SUMMARY

LOT #	LOT SQ. FT.	LIVING SQ. FT.	GARAGE SQ. FT.	PORCH SQ. FT.	F A R
1	9,905 SF±	2,835 SF±	587 SF±	448 SF±	26.6%
2	10,002 SF±	3,433 SF±	682 SF±	409 SF±	35.1%
3	10,009 SF±	3,433 SF±	682 SF±	409 SF±	35.1%
4	10,009 SF±	3,433 SF±	682 SF±	409 SF±	35.1%
5	10,003 SF±	2,835 SF±	587 SF±	448 SF±	26.3%
6	10,001 SF±	2,835 SF±	587 SF±	448 SF±	26.3%
7	10,010 SF±	2,835 SF±	587 SF±	448 SF±	26.3%
TOTAL	69,938 SF±	20,839 SF±	4,394 SF±	3,019 SF±	
HIGH	10,010 SF±	3,433 SF±	682 SF±	448 SF±	35.1%
LOW	9,905 SF±	2,835 SF±	587 SF±	409 SF±	26.3%
AVERAGE	9,991 SF±	2,977 SF±	628 SF±	431 SF±	30.1%

RECEIVED
APR 05 2013
CITY OF PLEASANTON
PLANNING DIVISION

PUD-94
EXHIBIT B

SITE PLAN AND PROJECT INFORMATION

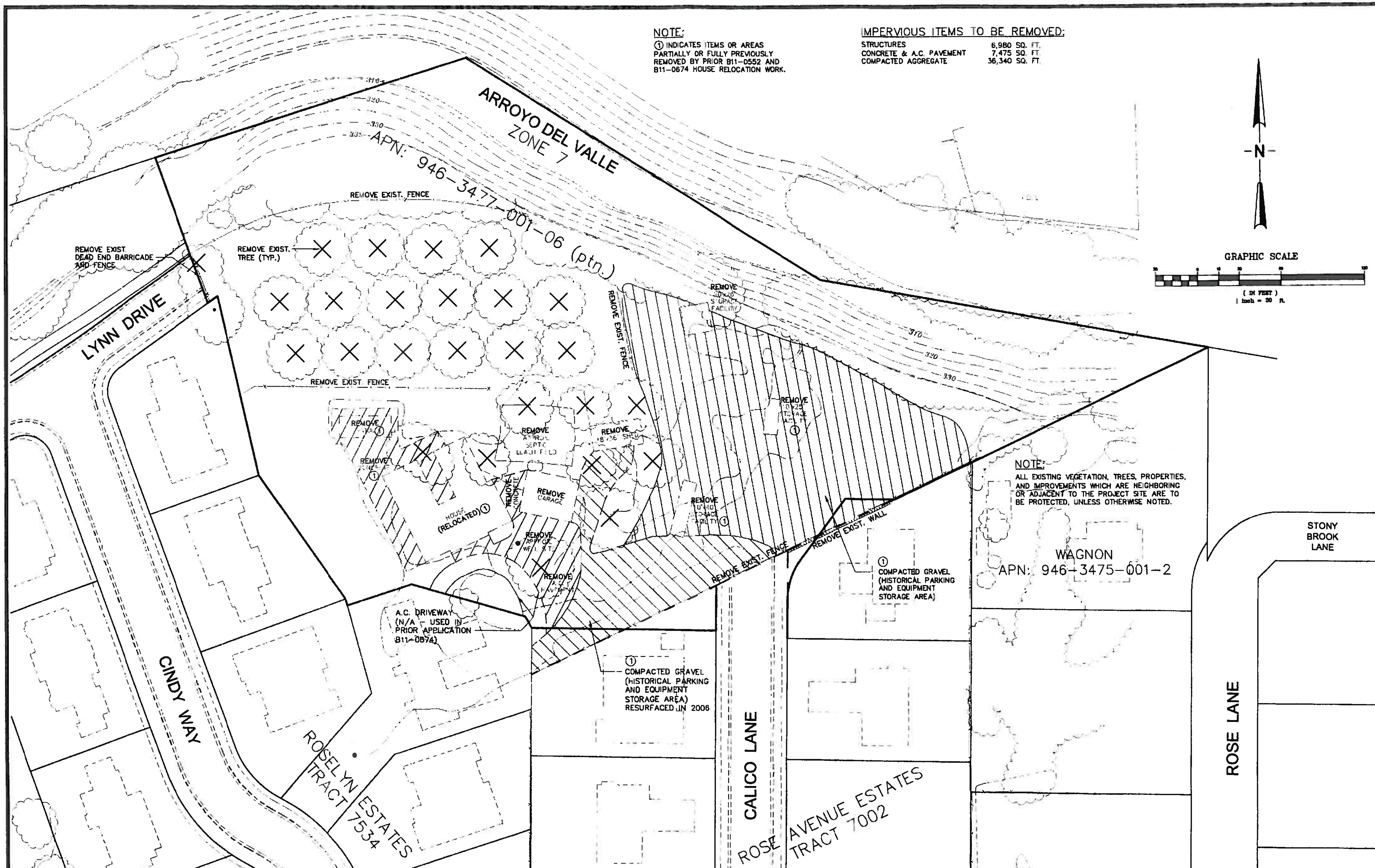
ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000
CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

#	REVISIONS	DATE
1	REV. LOT 1	12/13/2012
2	REV. SANITARY SEWER ALIGNMENT	12/13/2012
3	REV. LOTS 1-7	3/2013
4	REV. WATER & SEWER ALIGNMENT	4/27/2013

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 8/15/2012
Scale: 1" = 40'
By: TED / ecb
Job No.: 0036



PREVIOUS IMPERVIOUS AND DEMOLITION PLAN

ROSELYN ESTATES PHASE II PROJECT

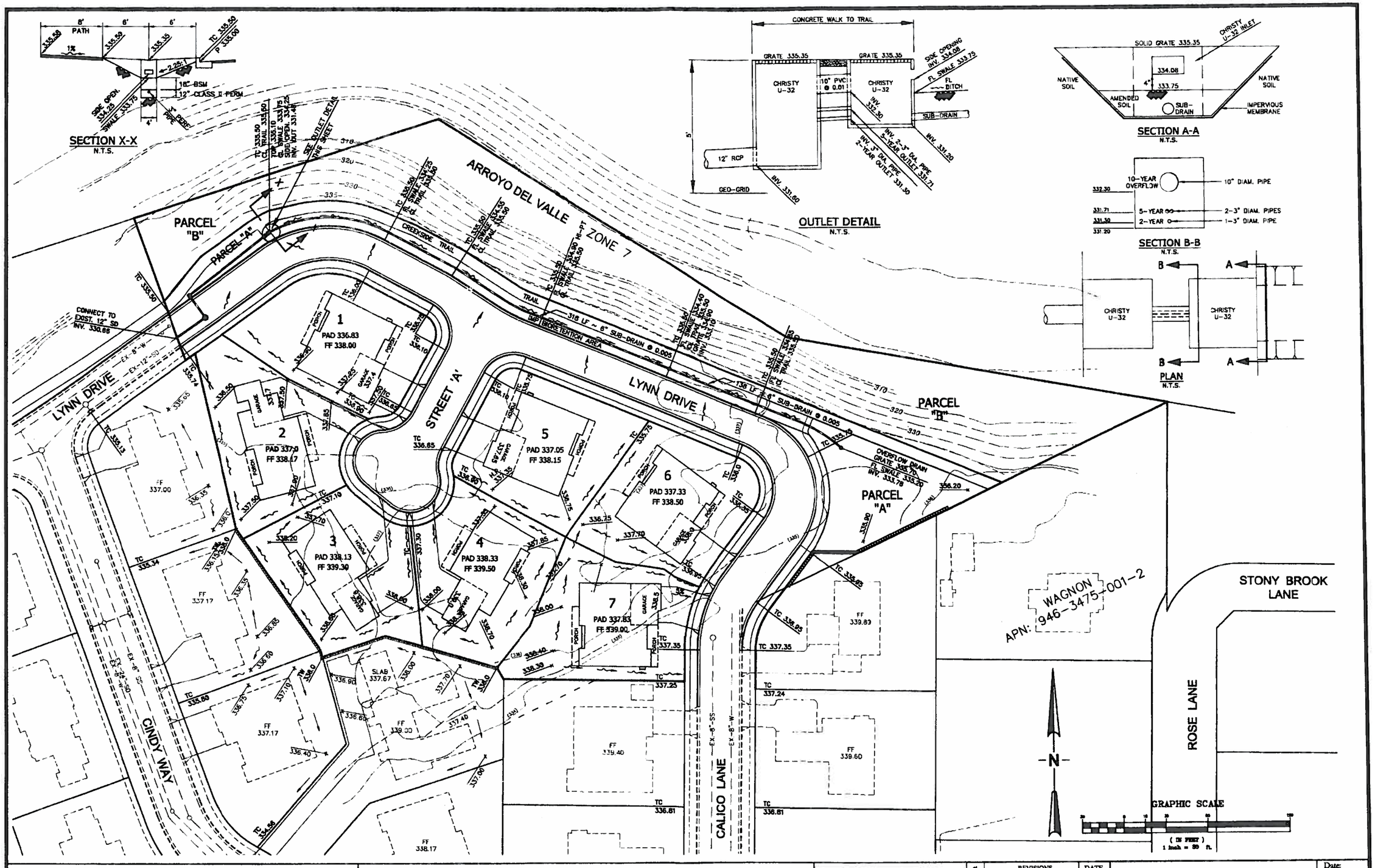
P.U.D. #00 ~ TRACT 0000

CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

#	REVISIONS	DATE

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 9/10/2012
Scale: 1" = 30'
By: JED / adv
Job No.: 06136



PRELIMINARY GRADING AND DRAINAGE PLAN

ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000

CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

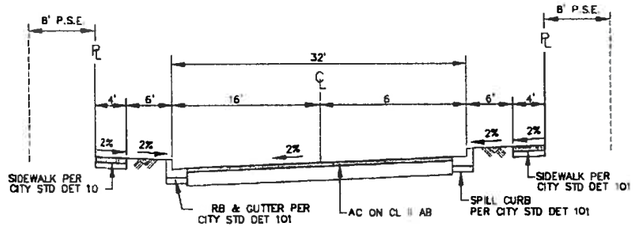
#	REVISIONS	DATE
1	REV. LOT 1	12/13/2012
2	REV. LOTS 1-7	1/2/2013
3	PER MEETING WITH CITY	3/27/2013

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 8/15/2012
Scale: 1" = 30'
By: JED / adv
Job No.: 06136

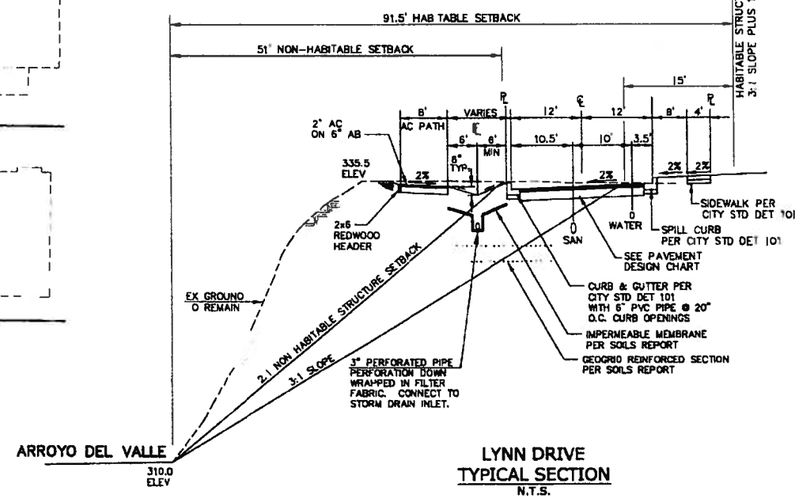
LEGEND

JT — JOINT TRENCH
SS — SANITARY SEWER
W — WATER LINE
WATER VALVE
STORM LINE
GEOGRID
FIRE HYDRANT
BLOW OFF
STREET LIGHT



CALICO LANE
STREET 'A'
TYPICAL SECTION
N.T.S.

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.



LYNN DRIVE
TYPICAL SECTION
N.T.S.

PRELIMINARY UTILITY AND SITE IMPROVEMENTS PLAN

ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000
CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

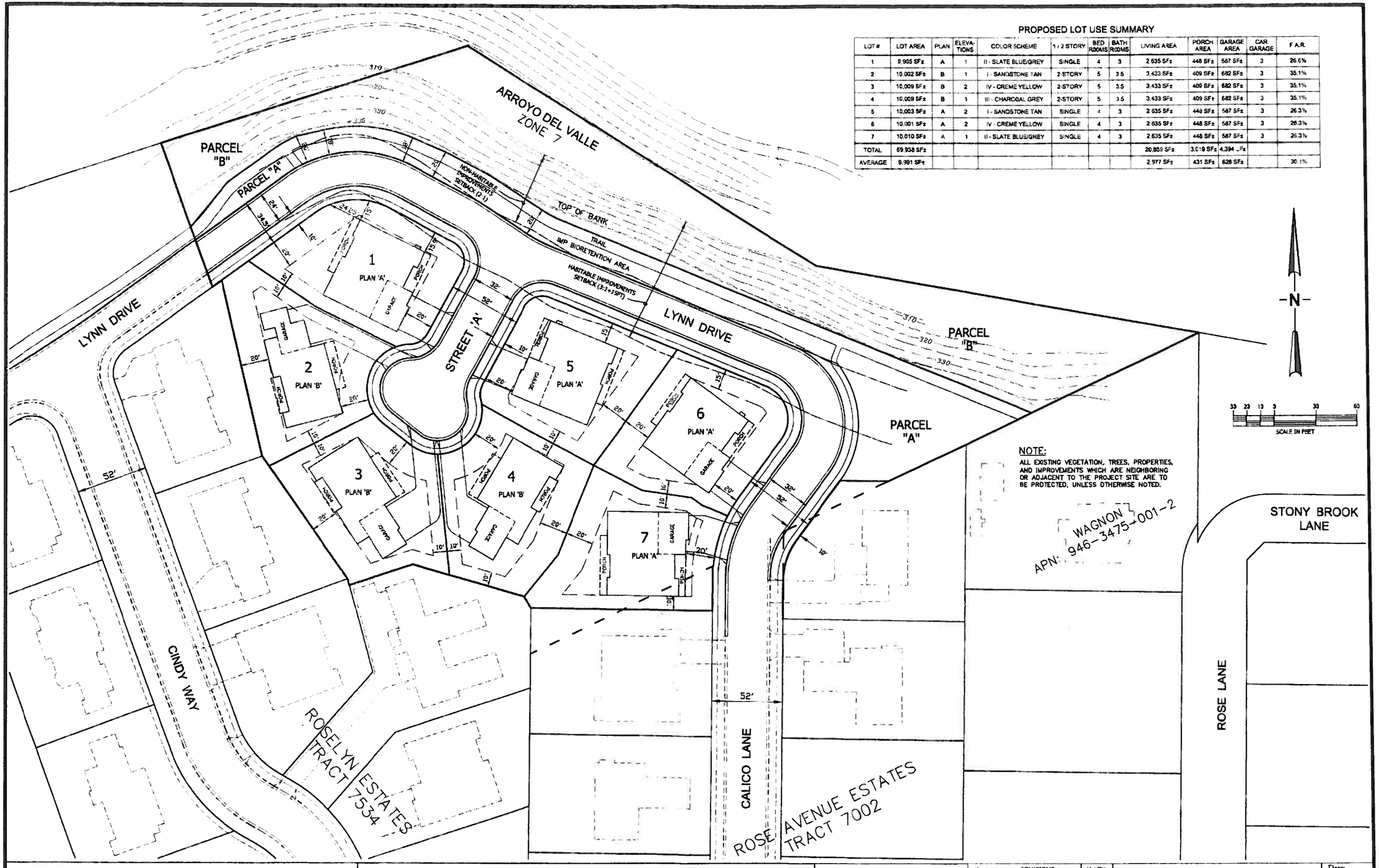
#	REVISIONS	DATE
1	REV. LOT 1	12/13/2012
2	REV. SANITARY SEWER ALIGNMENT	12/19/2012
3	REV. LOTS 1-7	1/3/2013
4	REV. WATER, SAN & SD ALIGNMENT	4/27/2013

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 11/13/2012
Scale: 1" = 30'
By: JED / mbr
Job No.: 06136

PROPOSED LOT USE SUMMARY

LOT #	LOT AREA	PLAN	ELEVATIONS	COLOR SCHEME	1 / 2 STORY	BED ROOMS	BATH ROOMS	LIVING AREA	PORCH AREA	GARAGE AREA	CAR GARAGE	F.A.R.
1	9,905 SF±	A	1	II - SLATE BLUE/GREY	SINGLE	4	3	2,635 SF±	448 SF±	587 SF±	3	26.6%
2	10,002 SF±	B	1	I - SANDSTONE TAN	2-STORY	5	3.5	3,433 SF±	409 SF±	682 SF±	3	35.1%
3	10,009 SF±	B	2	IV - CREME YELLOW	2-STORY	5	3.5	3,433 SF±	409 SF±	682 SF±	3	35.1%
4	10,009 SF±	B	1	III - CHARCOAL GREY	2-STORY	5	3.5	3,433 SF±	409 SF±	682 SF±	3	35.1%
5	10,003 SF±	A	2	I - SANDSTONE TAN	SINGLE	4	3	2,635 SF±	448 SF±	587 SF±	3	26.3%
6	10,001 SF±	A	2	IV - CREME YELLOW	SINGLE	4	3	2,635 SF±	448 SF±	587 SF±	3	26.3%
7	10,010 SF±	A	1	II - SLATE BLUE/GREY	SINGLE	4	3	2,635 SF±	448 SF±	587 SF±	3	26.3%
TOTAL	69,938 SF±							20,859 SF±	3,019 SF±	4,394 SF±		
AVERAGE	9,991 SF±							2,977 SF±	431 SF±	628 SF±		30.1%



NOTE:
ALL EXISTING VEGETATION, TREES, PROPERTIES, AND IMPROVEMENTS WHICH ARE NEIGHBORING OR ADJACENT TO THE PROJECT SITE ARE TO BE PROTECTED, UNLESS OTHERWISE NOTED.

BUILDING PLOTTINGS AND SETBACKS

ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000
CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

#	REVISIONS	DATE
1	REV. LOT 1	12/13/2012
2	REV. LOTS 1-7	1/3/2013

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 9/10/2012
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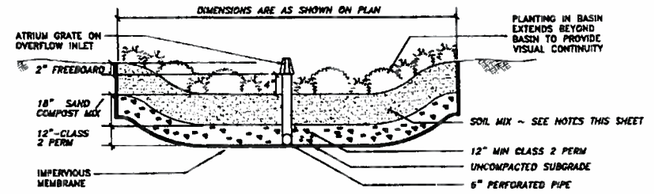

BIO-RETENTION FACILITY
N.T.S.

DMA	AREA	SURFACE
DMA-1	3,670 SF±	ROOF
DMA-2	3,285 SF±	ROOF
DMA-3	3,285 SF±	ROOF
DMA-4	3,285 SF±	ROOF
DMA-5	3,670 SF±	ROOF
DMA-6	3,670 SF±	ROOF
DMA-7	3,670 SF±	ROOF
DMA-8	555 SF±	CONCRETE
DMA-9	1,125 SF±	CONCRETE
DMA-10	1,380 SF±	CONCRETE
DMA-11	1,210 SF±	CONCRETE
DMA-12	535 SF±	CONCRETE
DMA-13	540 SF±	CONCRETE
DMA-14	805 SF±	CONCRETE
DMA-15	28,470 SF±	ASPHALT
DMA-16	27,690 SF±	LANDSCAPING
DMA-17	11,520 SF±	LANDSCAPING

IMP	SIZE
1	11,205 SF±

LEGEND

- BIO-SWALE / PLANTERS
- IMPERVIOUS MEMBRANE
- CATCH BASINS
- SD — STORM DRAIN LINE
- DMA-2 — DENOTES AREA (DMA) DRAINAGE MANAGEMENT AREA
- IMP-2 — INTEGRATED MANAGEMENT PRACTICE

STORM WATER CONTROL PLAN

ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000
CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

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2	REV. LOTS 1-7	1/2/2013
3	PER MEETING WITH CITY	3/27/2013

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 9/10/2012
Scale: 1" = 30'
By: JED / adv
Job No.: 06136

RECORD OWNER / DEVELOPER
ROSELYN ESTATES, LL
c/o MR. LYNN JANSEN
P.O. BOX 417
O ABLO, CA 9452 -041 7
(925) 743-8482

ENGINEER:
OEBOL CIVIL ENGI N
811 SAN RAMON VAL EY B VO., S 2 I
OANVILLE, CA 94526
(925) 837-3780

OILS ENGINEER:
NGEO, INC.
2010 CROW CANYO PLA
SAN RAMON, CA 94583
(92S) 866-9000

SITE AOORESS:
1623 CINOY WAY - PARC 'B'
PLEASANTON CA 94566

ASSESSOR S PARCEL N R:
946-3477-001-06 (p

EXISTING USE: RES OENTIAL
PROPOSED USE: RESIOENTIA UBDIVISION
GENERAL PLAN NEOIUM OENS RESIDENTIAL
EXISTING ZONING: PUO-MO

LOT	LOT AREA (SQ FT.)
	905
	10,002
	10,009
5	10,003
	10, 01
	10 010
PARCEL 'A'	17,508
PARCEL 'B'	40,945

SMALLEST LOT: LOT 1 ~ 9,905 SQ. FT.

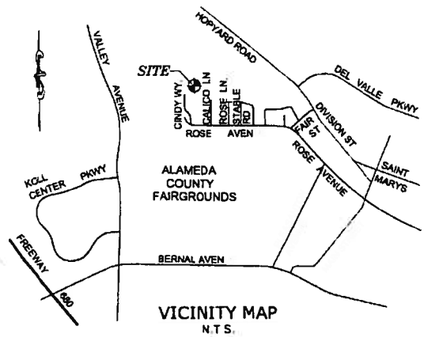
AVERAGE LOT AREA: 9,991 SQ. FT.

TOTAL AREA: 3.7| AC.

UTILITIES:
WATER - CITY OF PLEASANTON
SANITARY SEWER - CITY OF PLEASANTON
STORM - CITY OF PLEASANTON
TELEPHONE - AT&T
GAS & ELECTRIC - PACIFIC GAS & ELECTRIC
CABLE TV - COMCAST
FIRE PROTECTION OISTRICT - LIVERMORE-PLEASANTON FIRE DEPARTMENT

BENCHMARK:
U.S.C. & G.S. OISK A 972 ~ 0.45 MILES NORTHWEST ALONG DIVISION STREET FROM THE WESTERN PACIFIC RAILROAD STATION AT PLEASANTON, 0.1 MILES NORTHWEST OF THE JUNCTION OF FAIR STREET IN THE TOP OF THE NORTHWEST AND THE SOUTHWEST CONCRETE CURB OF THE CONCRETE BRIDGE FI 318 OVER ARROYO OEL VALLE, 16 1/2 FEET SOUTHWEST OF THE CENTERLINE OF THE STREET, 1.0 FEET SOUTHWEST OF THE NORTHWEST CURB AND ABOUT 1 FOOT HIGHER THAN THE CURB. ELEVATION 345.042

NOTES:
1. PARCEL 'A' TO BE CONVEYED TO AND MAINTAINED BY THE ROSELYN HOM W ERS ASSOCIATION FOR STORM WATER DETENTION AND PUBLIC TRAIL PURPOSES.
2. PARCEL 'B' TO BE CONVEYED TO THE HOMEOWNERS ASSOCIATION WITH AN IRREVOCABLE OFFER OF DEDICATION TO BE MADE TO ACFC & WCD ZONE 7.
3. ALL CONDITIONS OF APPROVAL OF PLANNED UNIT DEVELOPMENT (PUD) 8 SHAL APPLY TO THIS TENTATIVE MAP.
4. SEE PLANNED UNIT DEVELOPMENT (PUD) 38 FOR BUILDING SETBA KS.



VICINITY MAP
N.T.S.

PRELIMINARY VESTING TENTATIVE MAP

ROSELYN ESTATES PHASE II PROJECT

P.U.D. #94 ~ TRACT 0000
CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA

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Danville, California 94526
Tel: 925/837-3780
Fax: 925/837-4378

Date: 9/10/2012
Scale: 1" = 30'
By: SD / ads
Job No.: 06136

ROSELYN ESTATES II

PLEASANTON, CALIFORNIA

LYNDEN HOMES

PROPOSED SITING SUMMARY

Front Setback Min.- Living Space	20 Feet	Front Setback Min. -Garage/Porch	15 Feet
Side Setback Min. -Standard	10 Feet	Side Setback Min.-Corner Lot	15 Feet
Rear Setback Min.- Living Space	20 Feet	Rear Setback Min.-Porch	20 Feet

PROPOSED LOT USE SUMMARY

LOT #	LOT SF	PLAN-ELEV(HAND)	LIVING SF/GARAGE SF	PORCH SF	FAR SF	FAR
1	9,905	A-1 (left)	2,635 / 587	448	2,635	26.6%
2	10,002	B-1 (right)	3,433 / 682	409	3,433	35.1%
3	10,009	B-2 (left)	3,433 / 682	409	3,433	35.1%
4	10,009	B-1 (right)	3,433 / 682	409	3,433	35.1%
5	10,003	A-2 (right)	2,635 / 587	448	2,635	26.3%
6	10,001	A-2 (left)	2,635 / 587	448	2,635	26.3%
7	10,010	A-1 (right)	2,635 / 587	448	2,635	26.3%
TOTAL	69,938		20,839 / 4,394	3,019	20,839	
HIGH	10,010		3,433 / 682	448		35.1%
LOW	9,987		2,635 / 587	409		26.3%
AVE.	10,060		2,977 / 628	431		30.1%

PROPOSED LAND USE SUMMARY

SFD Residential Lots	1.606 Acres (44%)
Streets and Sidewlaks ROW	0.747 Acres (20%)
Other ROW	0.432 Acres (12%)
Arroyo Del Valle	0.913 Acres (24%)
Total Project (Gross)	3.709 Acres (100%)
Total Project (Net w/o Arroyo)	2.796 Acres (76%)

PROPOSED PROJECT SUMMARY

Total Residentiol Units	7 Units
total Gross Acres	3.71 Acres
Gross Density	1.89 Du/Ac
Total Net Acres (w/o Arroyo)	2.80 Acres
Total Net Density (w/o Arroyo)	2.50 Du/Ac
Smallest Lot Size	9,905 Sq. Ft.
Largest Lot Size	10,010 Sq. Ft.
Average Lot Size	9,929 Sq. Ft.
Average Home (Living)	3,034 Sq. Ft.
Average FAR	30.1%
Highest FAR	35.1%

OWNER: ROSELYN ESTATES LLC

DEVELOPER/BUILDER: LYNN M. JANSEN
dba LYNDEN HOMES
P.O. BOX 417
DIABLO, CALIFORNIA 94528-0417

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)

ROSELYN ESTATES II

PLEASANTON, CALIFORNIA

Lynden HOMES

PLAN A

- PLAN AREAS

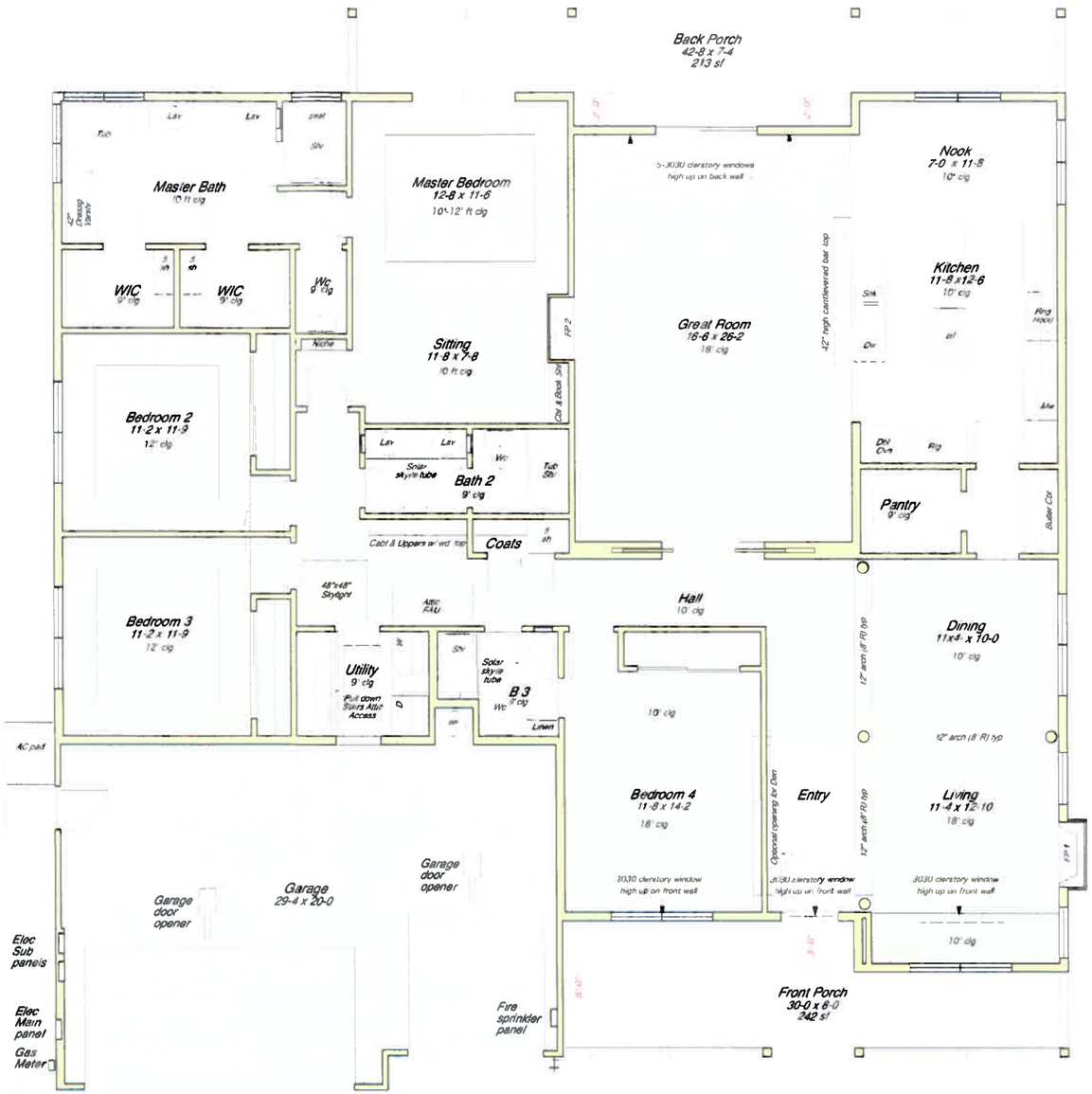
  Living Area : 2,635 sf
  Garage Area : 587 sf
  Covered Porch Area : 448 sf

- MAIN ROOMS

  4 Bedrooms
  3 Baths
  3 Car Garage

- FEATURES

  - Living Room
  - Dining Room
  - Kitchen Nook
  - Open Family Room
  - Master Bedroom Sitting
  - Laundry Room
  - 10' Ceilings in Main Rooms

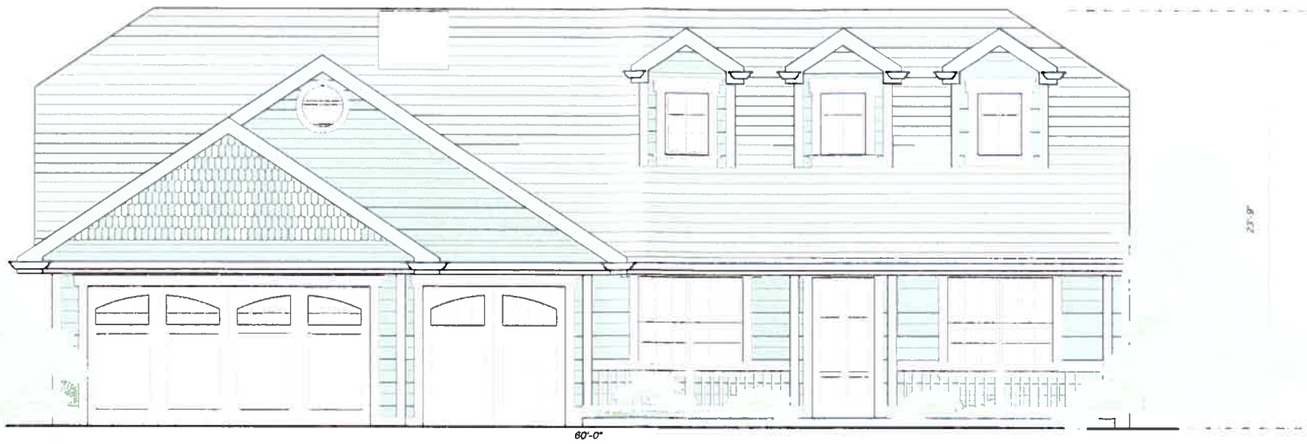


ROSELYN ESTATES II

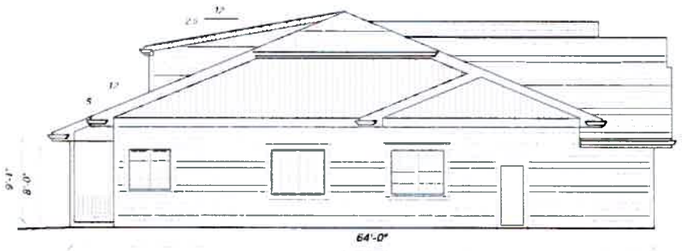
PLEASANTON, CALIFORNIA

Lynden HOMES

PLAN A
ELEVATION A-1



FRONT



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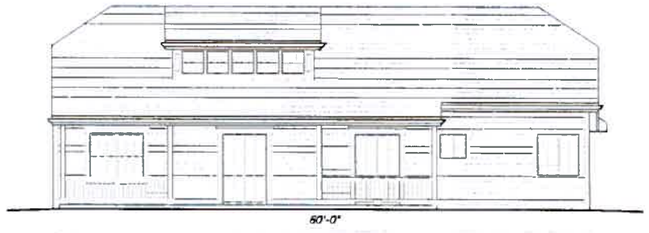
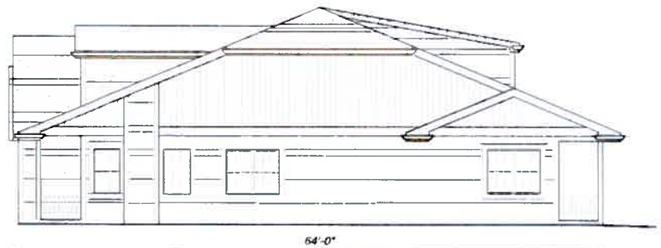


REAR



RIGHT

COLOR SCHEME 2	
MAIN COLOR	Slate Blue / Gray
SIDING BODY	KM3852-2 Constance
GARAGE DOOR	KM3850-1 Dancing Bubbles
FRONT DOOR	73 Cortez
TRIM	23 Swiss Coffee
ROOF	Eagle Lite
PRODUCT	999 Charcoal Range
DESCRIPTION	Gray Range

COLOR SCHEME 2
is used for
LOTS 2 & 5

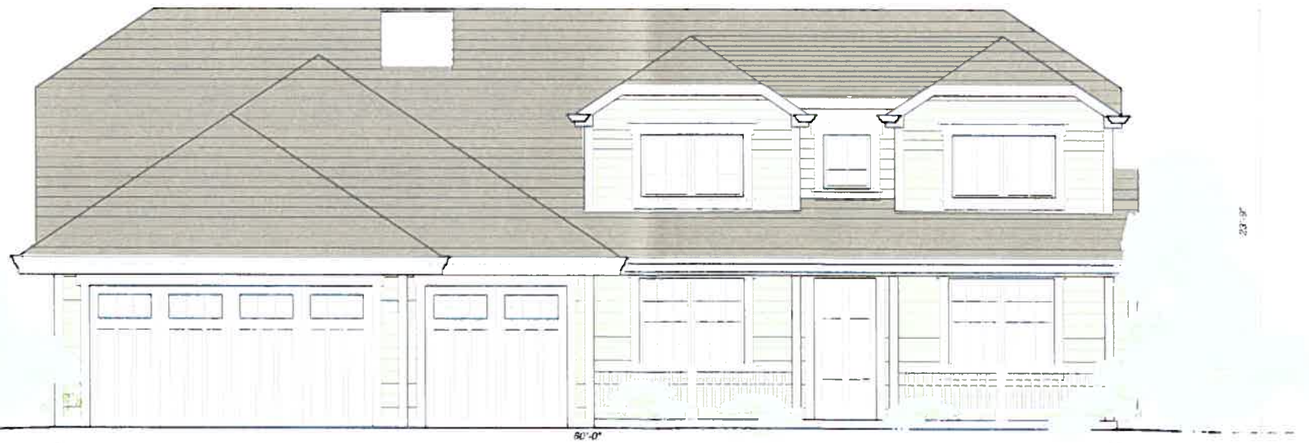
EXTERIOR MATERIALS

1) Roof : Flat, Handsplit Shake look, Concrete Tile
(Natural Wood Colors : Tan, Brown and Grey)

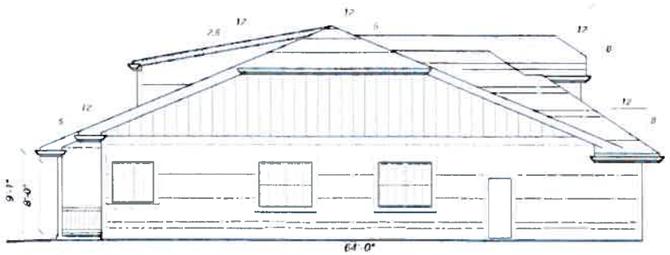
2) Siding : 8" "Hardiplank" Wood textured Lap Siding
individually layed horizontal.
Typical all sides.
(Earthtone colors : Cream, sand, slate and stone.)

3) Trim : 2 x & 4x S4S wood trim.
(Color : primarily Swiss Coffee white

PLAN A
ELEVATION A-2



FRONT



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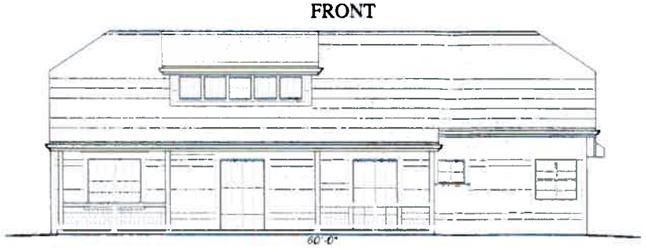

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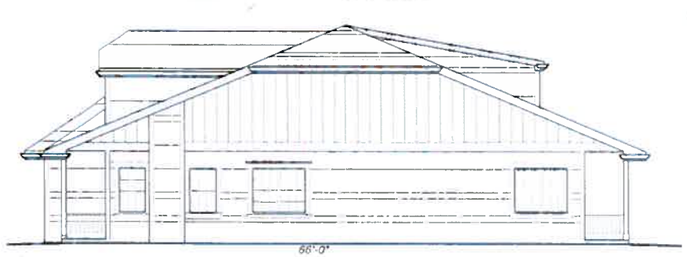


RIGHT

COLOR SCHEME 1	
MAIN COLOR	Tan / Brown
SIDING BODY	231 Sandstone Tan
GARAGE DOOR	36 Navajo White
FRONT DOOR	196 Villita
TRIM	23 Swiss Coffee
ROOF	Eagle Lite
PRODUCT	901 Oakwood
DESCRIPTION	Brown/Brown Streaks

COLOR SCHEME 1
is used for
LOTS 1 & 7

ROSELYN ESTATES II

PLEASANTON, CALIFORNIA

Lynden HOMES

PLAN B

UPPER FLOOR

MAIN FLOOR

- PLAN AREAS

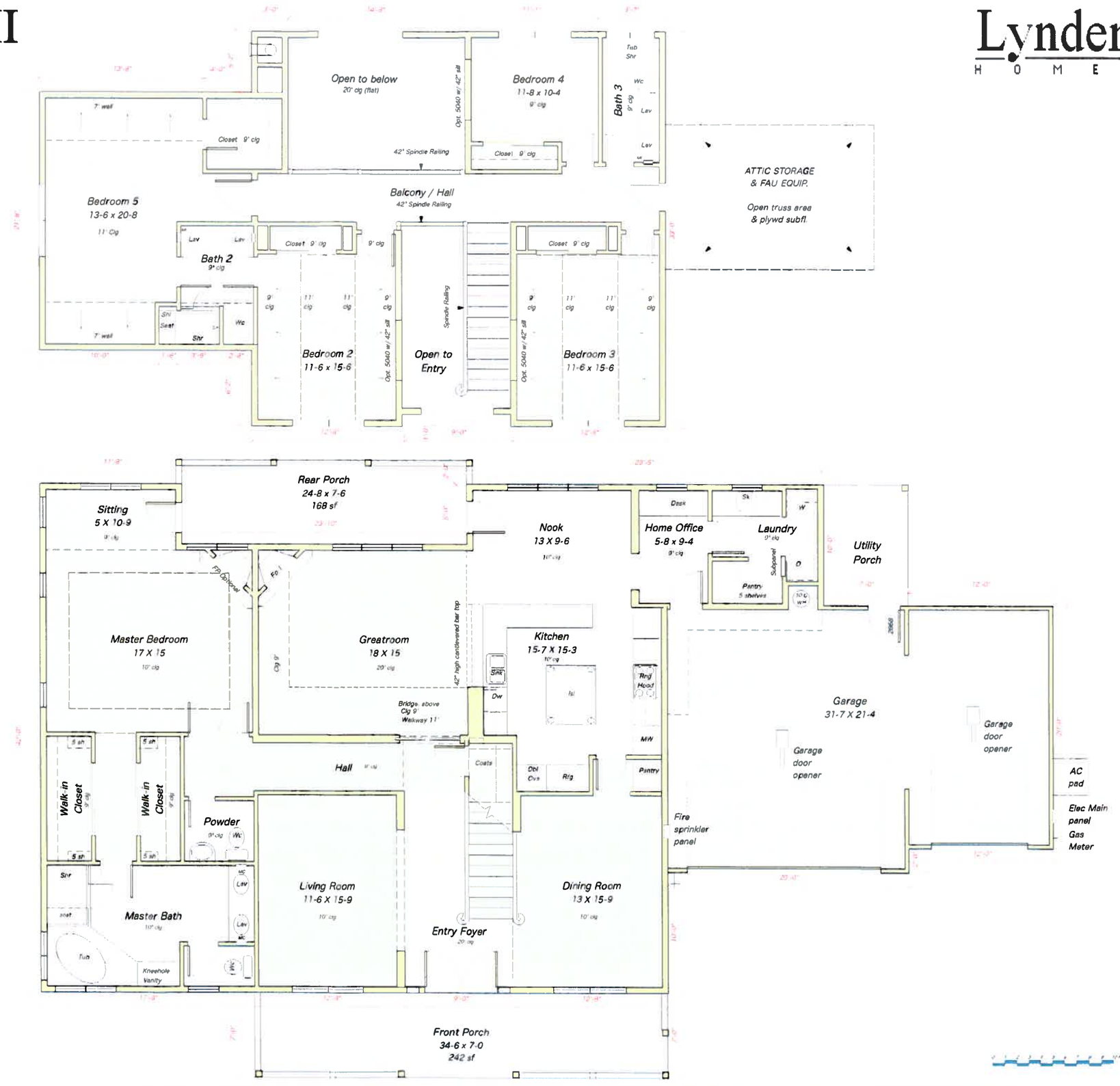
Living Area Main : 2,195 sf
Living Area Upper : 1,238 sf
Living Area Total : 3,433 sf
Garage Area : 680 sf
Covered Porch Area : 409 sf

- MAIN ROOMS

5 Bedrooms
3 Baths plus
Powder Room Half Bath
3 Car Garage

- FEATURES

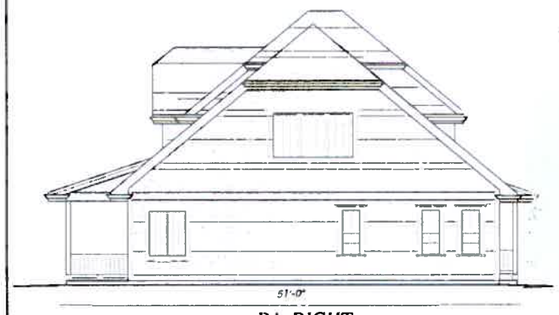
- Living Room
- Dining Room
- Kitchen Nook
- Open Family Room
- Master Bedroom Sitting
- Laundry Room
- 10' Ceilings in Main Rooms



ROSELYN ESTATES II

PLEASANTON, CALIFORNIA

Lynden HOMES



B1- RIGHT

B1 - FRONT

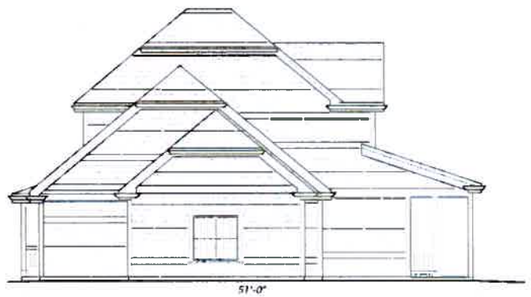
PLAN B

ELEVATION B-1

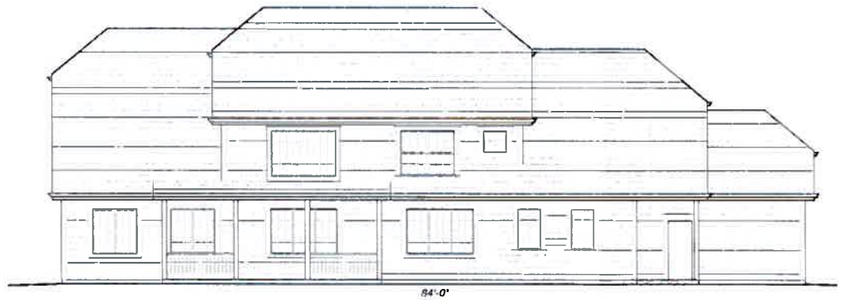
COLOR SCHEME 3

MAIN COLOR	Stone Gray
SIDING BODY	186 Keystone
GARAGE DOOR	KM3941-1 Wishing Star
FRONT DOOR	407 Carbon
TRIM	23 Swiss Coffee
ROOF	Eagle Lite
PRODUCT	903 Charcoal
DESCRIPTION	Brown/Brown Streaks

COLOR SCHEME 3
is used for
Lot 4



B1-LEFT



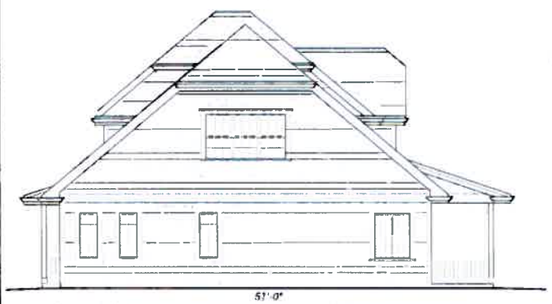
B1 - REAR (B2 - REAR REVERSED)

EXTERIOR MATERIALS

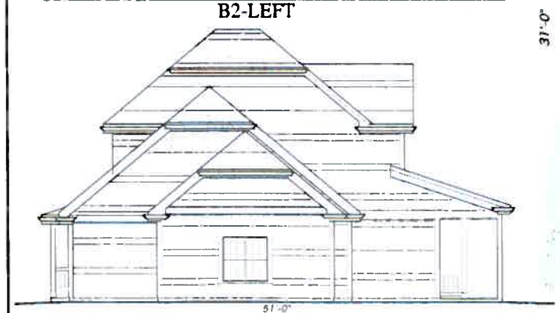
1) Roof : Flat, Handsplit Shake look, Concrete Tile
(Natural Wood Colors : Tan, Brown and Grey)

2) Siding : 8" "Hardiplank" Wood textured Lap Siding-
individually layed horizontal.
Typical all sides.
(Earthtone colors : Cream, sand, slate and stone.)

3) Trim : 2 x & 3x S4S wood trim.
(Color : primarily Swiss Coffee white



B2-LEFT



B2- RIGHT

B2 - FRONT

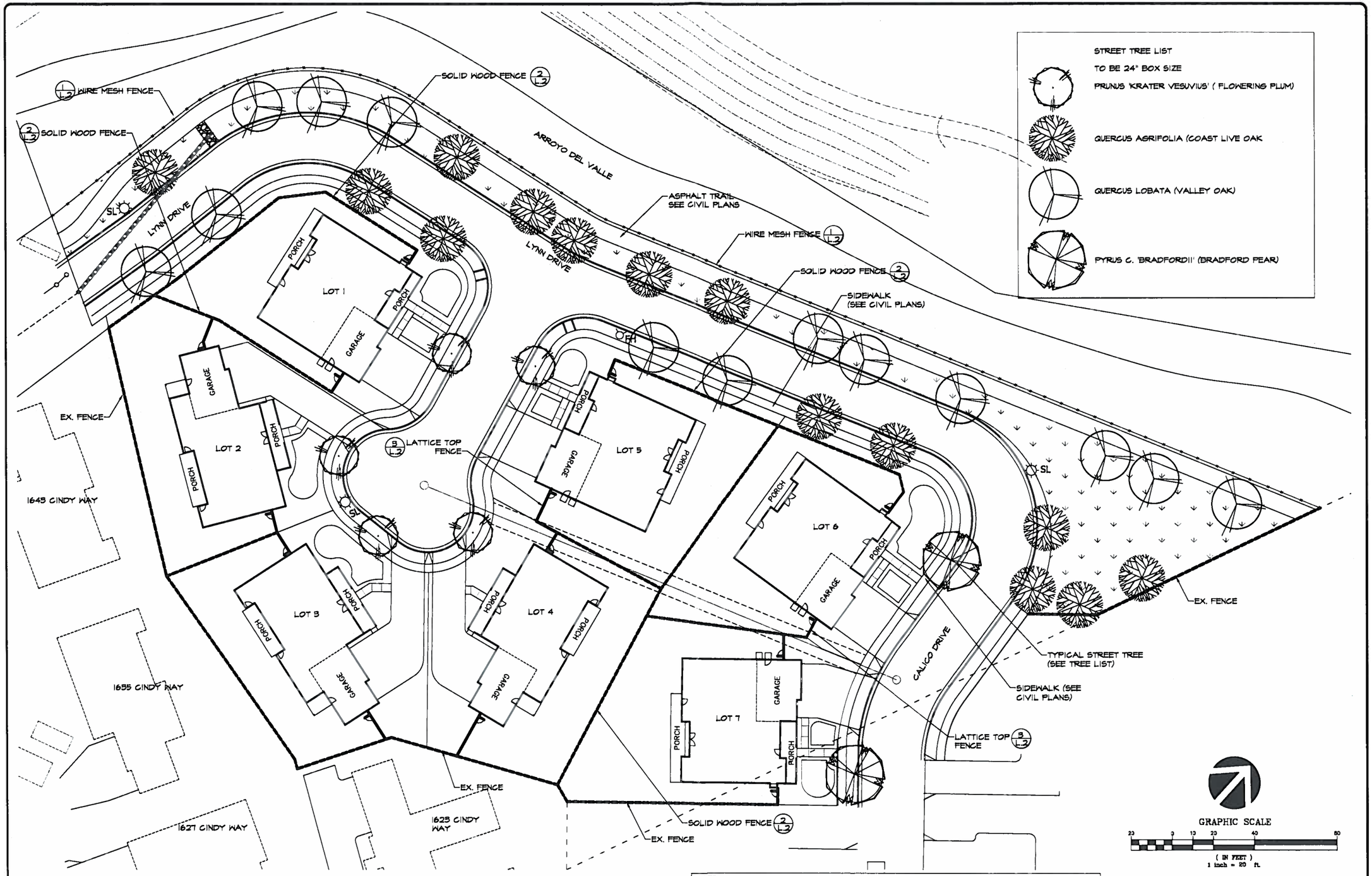
PLAN B

ELEVATION B-2

COLOR SCHEME 4

MAIN COLOR	Cream Yellow
SIDING BODY	KM3531-1 Home & Hearth
GARAGE DOOR	KM3530-1 Shedded Wheat
FRONT DOOR	73 Cortez
TRIM	23 Swiss Coffee
ROOF	Eagle Lite
PRODUCT	904 New Cedar
DESCRIPTION	Light Brown

COLOR SCHEME 4
is used for
Lots 3 & 6



NOTE:
APPLICANT/DEVELOPER SHALL INCLUDE ALL RECOMMENDATIONS PROVIDED FOR TREE PROTECTION, PRESERVATION AND/OR REMOVAL IN ACCORDANCE WITH THE HORT SCIENCE TREE REPORT DATED 'RECIEVED SEPTEMBER 23,2004'. NO TREE TRIMMING OR PRUNING OTHER THAN THAT SPECIFIED IN THE TREE REPORT SHALL OCCUR. THE APPLICANT SHALL ARRANGE FOR THE ARBORIST TO CONDUCT A FIEL INSPECTION PRIOR TO ISSUANCE OF DEMOLITION AND GRADING PERMITS TO ENSURE THAT ALL RECOMMENDATIONS HAVE BEE PROPERLY IMPLEMENTED. THE CONSULTANT SHALL CERTIFY IN WRITING THAT SUCH RECOMMENDATIONS HAVE BE FOLLOWED.

REFER TO L.2 FOR DETAILS AND NOTES

REVISIONS

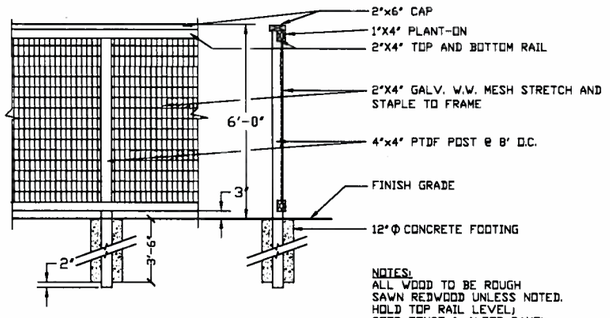
Thomas Beak & Associates, LLP.
Landscape Architects
1620 North Main Street, Suite 4
Walnut Creek, CA 94596
Ph: 925.933.2583

ROSELYN ESTATES II
PLEASANTON, CALIFORNIA
LYNDEN HOMES

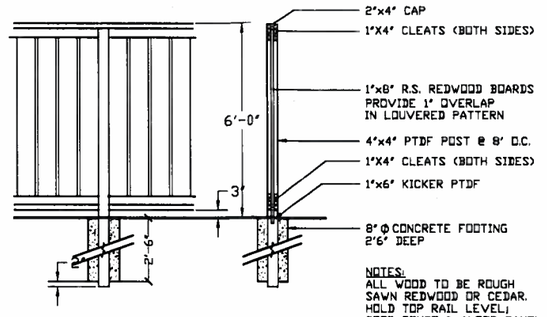
STREET TREE FENCING PLAN

DESIGNED:	DRAWN:
AS	AS
CHECKED:	JOB NO
DATE: 02-27-12	
SCALE: NOTED	

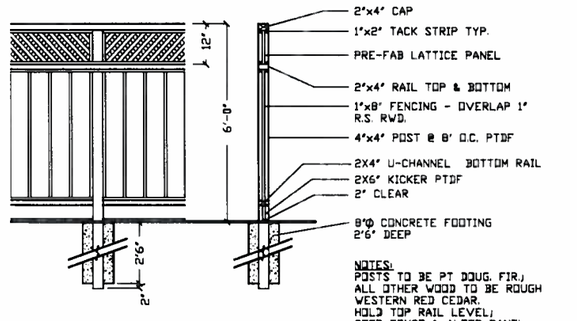
SHEET L.1 OF 4 SHEETS



1 WIRE MESH FENCE DETAIL

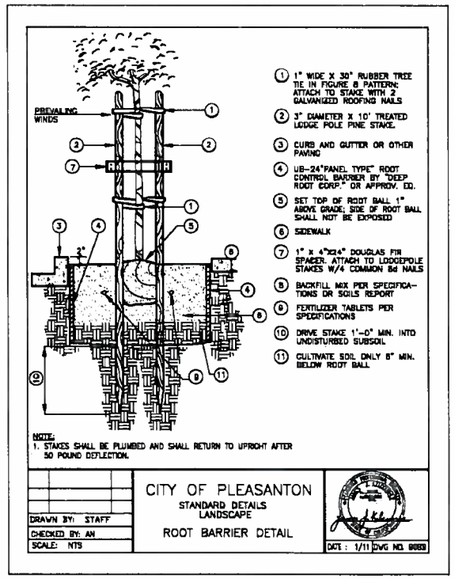


2 SOLID WOOD FENCE DETAIL

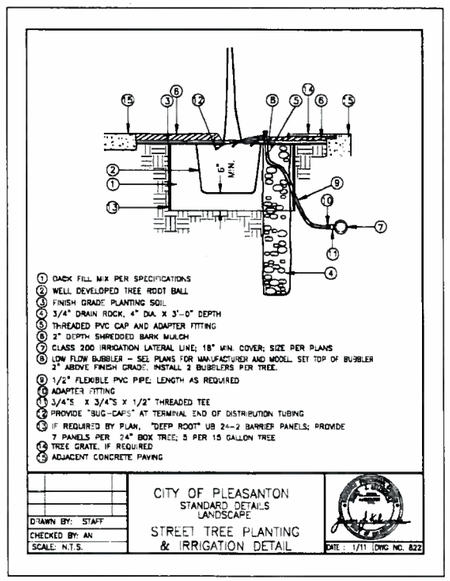


3 LATTICE TOP FENCE

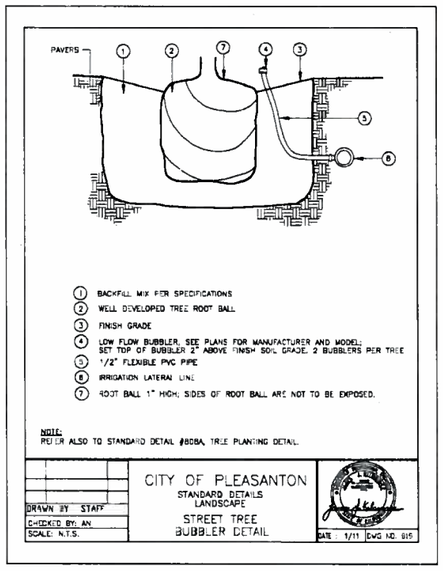
NOT TO SCALE



TREE PLANTING DETAILS FOR CITY STREET TREES ONLY. SEE SHEET L.4 FOR TREE PLANTING DETAILS FOR TREES ON INDIVIDUAL LOTS



TREE PLANTING DETAILS FOR CITY STREET TREES ONLY. SEE SHEET L.4 FOR TREE PLANTING DETAILS FOR TREES ON INDIVIDUAL LOTS



TREE PLANTING DETAILS FOR CITY STREET TREES ONLY. SEE SHEET L.4 FOR TREE PLANTING DETAILS FOR TREES ON INDIVIDUAL LOTS

REVISIONS

Thomas Beak & Associates, LLP.
Landscape Architects
1620 North Main Street, Suite 4
Walnut Creek, CA 94596
Ph: 925.933.2383

ROSELYN ESTATES II
PLEASANTON, CALIFORNIA
LYNDEN HOMES

FENCING, STREET TREE DETAILS

DESIGNED: AS	DRAWN: AS
CHECKED:	JOB NO:
DATE: 02-27-12	
SCALE: NOTED	

SHEET L.2
OF 4 SHEETS

STREET TREE (TYPICAL)
SEE SHT. L.1

ARROYO DEL VALLE

LYNN DRIVE

TURF

NATIVE GRASS SOD

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

LOT 6

LOT 7

PORCH

GARAGE

CALICO DRIVE

1645 CINDY WAY

1635 CINDY WAY

1627 CINDY WAY

1625 CINDY WAY

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

REFER TO L.4 FOR PLANT LIST
NOTES AND DETAILS

REVISIONS

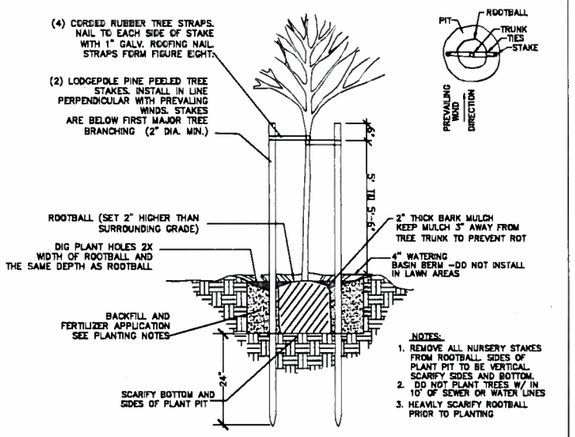
Thomas Beak & Associates, LLP.
Landscape Architects
1620 North Main Street, Suite 4
Walnut Creek, CA 94596
Ph: 925.933.2583

ROSELYN ESTATES II
PLEASANTON, CALIFORNIA
LYNDEN HOMES

PRELIMINARY
PLANTING
PLAN

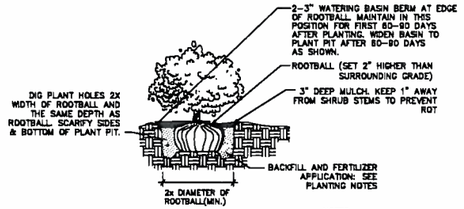
DESIGNED: AS	DRAWN: AS
CHECKED:	JOB NO:
DATE: 02-27-12	
SCALE: NOTED	

SHEET
L.3
OF 4 SHEETS



TREE PLANTING DETAIL

TREE PLANTING DETAILS FOR INDIVIDUAL LOTS ONLY. SEE SHEET L.2 FOR TREE PLANTING DETAILS FOR CITY STREET TREES



SHRUB PLANTING DETAIL

PLANTING NOTES

GENERAL NOTES: The Landscape Contractor shall inspect the site and be familiar with all existing site conditions prior to submitting his bid. Contractor shall not willfully proceed with construction as shown when it is obvious that obstructions, landscape area and/or grade differences exist that may not have been known during design. such conditions shall immediately be brought to the attention of the Landscape Architect. The contractor shall assume full responsibility for all necessary revisions due to failure to give such notification. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, structures and obstructions. Contractor shall take sole responsibility for all costs incurred due to damage and/or replacement of these items. Contractor shall be responsible for coordination between trades and subcontractors as required to accomplish landscape operations. The Landscape Contractor shall be responsible for any damage to existing facilities caused by or during the performance of his work. All repairs shall be made at no cost to the Owner. Planting shall be installed in conformance with all applicable local codes and ordinances by experienced workmen and a licensed Landscape Contractor who shall obtain all necessary permits and pay all required fees.

SOIL PREPARATION: The Landscape Contractor shall be responsible for finish grading and all planting area drainage. Positive drainage away from the building as per city codes shall be maintained. No low spots which hold standing water will be accepted. The Landscape Contractor shall incorporate soil preparation amendment into planting areas as noted below. Where rototilling is not possible, incorporate soil amendments into top 6 inches with hand tools. After installation of irrigation system, all planting areas are to be fine graded to within 2 inches and slightly mounded away from edges of top of planter, curb, walk, header, etc. and raked smooth with all rocks and debris over 1 inch in diameter removed.

SOIL PREPARATION AMENDMENTS AND BACKFILL MIX The Landscape Contractor shall amend existing soil, by rototilling, 6 cu. yd. 'nitrofied' soil conditioner (with a PH of 6.5-7.5) and 15 lbs. granular fertilizer (12-12-12) per 1,000 sq. ft. into the top 6 inches of soil in all planting areas. Pit Planting Mix: for trees and shrubs mix 1/3 organic amendment, 2/3 amended topsoil as noted above. IF SOILS FERTILITY REPORT VARIES FROM THIS SPECIFICATION, SOILS REPORT TAKES PRECEDENT.

TREE PLANTING: The trees are to be planted as per detail on plan. Trees shall typically be located a minimum of 4 feet from curbs, walks, headers, buildings, overheads, and other trees within the project. backfill shall be the 'Pit Planting Mix' as noted above. All trees shall receive 'Agriform' 21 gram (20-20-5) fertilizer tablets at the following rates: For 24 inch box trees: 6 tablets, for 15 gallon trees: 4 tablets, for 5 gallon trees: 3 tablets. Thoroughly water trees immediately after planting.

ROOT BARRIERS: Trees within 5'0" of any building or paved surface, curb or building shall receive a root barrier. 'Deep Root' surround type barrier #UB-24-2 shall be used except for street trees.

SHRUB PLANTING: The shrubs shall be spotted as per plan and the locations approved prior to the digging of the holes. Shrub backfill shall be the 'Pit Planting Mix' as noted in 'Backfill soil mixes'. All shrubs shall receive 'Agriform' 21 gram (20-20-5) fertilizer tablets at the following rates: For 15 gallon shrubs: 4 tablets, for 5 gallon shrubs: 3 tablets, for 1 gallon shrubs: 1 tablet. Thoroughly water shrubs immediately after planting.

MULCHING: Mulch all planting areas, excluding lawn, having a slope less than 2:1 with a 3 inch minimum depth of 1/2"-3/4" recycled black dyed fir bark (nugget not shredded material) with a PH of no higher than 5.0. and free of noxious weeds and foreign materials. Provide owner sample PRIOR to installation. Keep bark 1" from base stems of shrubs, ground covers and trees.

SOD LAWN: Sod shall be as specified on drawings and installed as per suppliers specifications. Remove from all turf areas, stones (1" or larger), mortar, concrete, asphalt, rubbish, debris and any materials harmfull to plant life. Remove or spray as required to eradicate noxious weed growth and roots. Thoroughly mix and pulverize the following proportions of materials (lightly compacted measurements) to a minimum depth of 6-8 inches while in a moist, friable condition: 6 inches of topsoil 15 lbs. fertilizer/1,000 sq. ft. inorganic (16-16-8) 6 cu. yd. Nitrogen stabilized soil amendment per 1,000 sq. ft. soil.

LAWN MAINTENANCE: Protect an maintain each area by watering, mowing, reseeding or seeding as necessary for a minimum of 60 days after turf installation or to the end of the 90 day maintenance period (which ever is latest). Establish a thick, weed free uniform stand of grass. Apply weed killer when broadleaf weeds start developing in competition with grass, apply at manufacturers specified rate. Mow grass at 1 1/2 inches in height when it attains a height of 2 inches. At 14 days after turf installation apply and thoroughly water in ferrous ammonium sulfate fertilizer @ 5 lbs./1000 sq. ft. At 60 days after installation fertilize with (16-16-8) @ 7 lbs./1,000 sq. ft. and again at the end of the maintenance period.

MAINTENANCE: The Contractor shall maintain the project for 90 days (or as requested by owner) following the approval to begin the maintenance period. During the entire maintenance period, watering, cultivating, weeding, mowing, repair/tightening of stakes and ties, restoration of basins, provision of supplemental water by hand in addition to irrigation system as necessary, spraying for insects and disease shall be performed. At the end of the 90 day maintenance period all areas are to be weed free and all plant material is to be in a healthy, thriving condition. Furnish Owner with typed maintenance manual outlining watering, fertilizing, weeding, pruning and mowing schedules.

SUBSTITUTIONS: Requests for substitutions of plant varieties shall be made to the Landscape Architect within 15 days after signing of contract.

GUARANTEE: All construction, trees and shrubs by the Landscape Contractor and/or his subcontractors shall be guaranteed for (1) one year after beginning of maintenance period. The contractor shall replace, at no expense to the Owner, any and all landscape materials that are in an unacceptable condition for time of use, and trees or shrubs that are dead or not in a vigorous, healthy growing condition; within two weeks of notification of such condition. Replacement shall be of the same kind and size as the originally specified item and shall be replaced as originally described on the drawings. The Contractor shall not be held liable for loss of plant materials during the guarantee period due to vandalism, accidental causes or acts of neglect by others than the Contractor, his agents and employees.

CLEAN UP: At the end of each work day, at the inspection for substantial completion and before acceptance of project, clean paved areas that are dirtied or stained by construction operations, by sweeping or washing, and remove defacements and stains. Remove construction equipment, excess materials and tools. Haul from Owners property the debris resulting from construction, and dispose of legally. Remove remaining temporary protection at time of acceptance by Owner unless otherwise agreed.

HEADER BOARD: Install header board where shown on plan and as specified on detail. Anchor with stakes spaced not more than 3 feet on center, and driven at least 1/2 inch below top of header. Use two galvanized nails or screws per stake to fasten to headers, and clinch point of each nail.

EXISTING TREES TO REMAIN: See arborist's report for specific directions for techniques for preserving existing trees.

PLANT MATERIALS LIST

SYMBOL	BOTANICAL NAME	COMMON NAME	WATER USE	SIZE
TREES:				
T-1	CERCIS C. 'FOREST PANSY'	REDBUD-STANDARD	LOW	15 GA
T-2	ERIOBOTRYA DEFLEXA	LOQUAT-STANDARD	LOW	15 GA
T-3	LAGERSTROEMIA 'TUSCARORA'	CRAPE MYRTLE- STANDARD	LOW	
SHRUBS:				
LARGE ACCENTS				
S-1	ANISDONTEA 'TARAS PINK'	CAPE MALLOW-STANDARD	LOW	5 GA
S-2	ALYOGYNE HUEGELII	BLUE HIBISCUS-STANDARD	LOW	5 GA
S-3	ROSA 'ICEBERG'	TREE ROSE-STANDARD	MED	
LARGE SHRUBS				
S-4	DODONAEA 'PURPLE ROBE'	HOPSEED BUSH	LOW	5 GA
S-5	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	LOW	5 GA
S-6	MYRICA CALIFORNICA	CALIFORNIA MYRTLE	LOW	5 GA
MEDIUM SHRUBS				
S-7	ARBUTUS U. 'COMPACTA'	DWARF STRAWBERRY BUSH	LOW	5 GA
S-8	BUXUS 'GREEN BEAUTY'	BOXWOOD	LOW	5 GA
S-9	COLEONEMA 'SUNSET GOLD'	COLEONEMA	LOW	5 GA
S-10	MYRTUS C. 'COMPACTA'	DWARF TRUE MYRTLE	LOW	5 GA
S-11	NANDINA 'BAR HARBOR'	DWARF HEAVENLY BAMBOO	LOW	5 GA
S-12	RHAMNUS 'EVE CASE'	COFFEEBERRY	LOW	5 GA
S-13	SALVIA GREGII	AUTUMN SAGE	LOW	5 GA
SPREADING SHRUBS				
S-15	ROSA X 'MAGIC CARPET'	PINK CARPET ROSE	MED	2 GA
S-16	CEANOTHUS 'JOYCE COULTER'	WILD LILAC	LOW	5 GA
SMALL ACCENT SHRUBS				
A-1	CAREX 'PRAIRIE FIRE'	SEDGE	LOW	1 GA
A-2	DIETES IRIDIODES	FORTNIGHT LILY	LOW	1 GA
A-3	FESTUCA 'IDAHOENSIS'	BLUE FESCUE	LOW	1 GA
A-4	HEMEROCALLIS 'LANDSCAPE SUPREME YELLOW'	DAYLILY	LOW	1 GA
A-5	LAVANDULA STOECHES	SPANISH LAVENDER	LOW	1 GA
A-6	NASELLA TENNUSECTA	FEATHER GRASS	LOW	1 GA
A-7	PHORMIUM 'JACK SPRATT'	DWARF FLAX	LOW	1 GA
A-8	TEUCRIUM LUCIDRYS	DWARF GERMANDER	LOW	1 GA
VINES				
V-1	SOLANUM JASMINOIDES	POTATO VINE	LOW	5 GA
GROUND COVER				
E	ERIGERON KARVINSKIANUS	SANTABARBARA DAISY	LOW	1GA@24"O.C.
L	LANTANA MONTEVIDENSIS	LANTANA	LOW	1GA@30"O.C.
R	ROSEMARINUS 'IRENE'	PROSTRATE ROSEMARY	LOW	1GA@30"O.C.
TURF	DWARF TALL FESCUE SOD ROLLS			

NATIVE GRASSES TURF:
'BIO-INFILTRATION SOD' FROM SOD ROLLS AVAILABLE: 'DELTA BLUEGRASS COMPANY'
(800)637-8873 deltabluegrass.com

IRRIGATION NOTES:
1. IRRIGATION TO BE A WATER CONSERVING DRIP TYPE SYSTEM EXCEPT TURF AREAS WHICH WILL BE LOW PRECIPITATION RATE SPRAY HEADS.
2. IRRIGATION CONTROLLERS FOR INDIVIDUAL LOTS WILL BE A WEATHER-BASED SMART CONTROLLER
3. BIO-INFILTRATION AREA TO UTILIZE EXISTING METER AND CONTROLLER IF POSSIBLE.

REVISIONS

Thomas Beck & Associates, LLP.
Landscape Architects
1020 North Main Street, Suite 1
Walnut Creek, CA 94596
Ph. 925.933.2585

ROSELYN ESTATES II
PLEASANTON, CALIFORNIA
LYNDEN HOMES

PLANT LIST
NOTES, DETAILS

DESIGNED:	DRAWN:
AS	AS
CHECKED:	JOB NO:
DATE: 02-27-12	
SCALE: NOTED	

SHEET
L.4
OF 4 SHEETS

PRELIMINARY ARBORIST REPORT

Roselyn Estates II
Pleasanton, CA

PREPARED FOR:
Roselyn Estates, LLC
c/o Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

PREPARED BY:
HortScience, Inc.
325 Ray Street
Pleasanton CA 94566

August, 2012

PUD-94
EXHIBIT B

HORT SCIENCE

Preliminary Arborist Report
Roselyn Estates II
Pleasanton

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Introduction and Overview

Roselyn Estates, LLC is planning to develop the property at 1623 Cindy Way, Parcel B, in Pleasanton. The property is an old walnut orchard that backs up to Arroyo del Valle along its northern boundary. The proposed development would construct seven new single-family residences on the 3.7 acre parcel. HortScience, Inc. was asked to prepare an **Arborist Report** for the site.

This report provides the following information:

1. An evaluation of the health and structural condition of the trees from a visual inspection.
2. An evaluation of the impacts of the proposed development on the trees.
3. The appraised value of all the trees, using the techniques described in the Guide for Plant Appraisal, 9th edition (Champaign IL 2000, International Society of Arboriculture).
4. Recommendations for tree preservation and removal.
5. Guidelines for tree preservation during the design, construction and maintenance phases of development.

Survey Methods

Trees were surveyed on August 9, 2012. The survey included all trees 6" and greater in diameter within and immediately adjacent to site. The procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with a numerically coded metal tag and recording its location on a map;
3. Measuring the trunk diameter at a point 54" above grade;
4. Evaluating the health and structural condition using a scale of 1 – 5:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
   - ***3*** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
   - ***2*** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
   - ***1*** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "good", "moderate" or "poor". Suitability for preservation considers the health, age and structural condition of the tree species, and its potential to remain an asset to the site.
   - ***Good***: Trees with good health and structural stability that have the potential for longevity at the site.
   - ***Moderate***: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'good' category.
   - ***Poor***: Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual tree may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

Fifty-two (52) trees, representing 10 species, were surveyed (Table 1, following page). Twenty-two (22) of the trees were located off-site, growing along the banks of the Arroyo del Valle, with portions of their canopies extending onto the development site. Descriptions of each tree are found in the ***Tree Assessment Forms*** and locations are shown on the ***Tree Assessment Map*** (see attachments).

Vegetation at the site was in three distinct groups:

- Twenty-four (24) of the trees were part of the former orchard, including 22 English walnuts and one (1) Calif. black walnut.
- Twenty-two (22) of the trees were growing in, or immediately adjacent to the riparian corridor. This group included several Calif. black walnuts, which are not used in orchard production.
- Seven (7) landscape trees remained; including four (4) Monterey pines, one (1) purple-leaf plum, one privet and one Raywood ash.

English walnut, with 22 trees or 34% of the population, was the most common species surveyed. In general, these were located in an open field on the northern half of the property. Average condition varied from poor (20 trees, or 91%), to moderate (2 trees, or 9%). None of the English walnuts were in good condition. The trees had not been maintained in several years and appeared to be suffering from a lack of adequate irrigation, as many had thin canopies.

Photo 1: English walnut #26 was in poor condition, with a dead top. The black walnut root stock was sprouting vigorously from the base.

California black walnut was the second most common species, with 12 trees (23%). Seven (7) of these trees were growing off-site, along the Arroyo del Valle, four (4) were located in the western corner of the site at the top of the creek bank (#25, 27 28, and 34), and one (#1) was the root stock of an orchard tree. In general, those growing along the creek were in fair to good condition, while those in the western corner were in poor. Specifically, Calif. black walnuts #27, 28 and 34 had large basal wounds with extensive trunk decay.

Four (4) Monterey pine s and four 94) Fremont cottonwoods were the next most common species. Monterey pines included one (1) planted as a screen in the western corner of the site (#35), and three (3) had planted at the top of the creek bank (#43, 45 and 46). Tree #35 was in poor condition, while those along the top of the creek bank were in fair to good condition. The Fremont cottonwoods were all growing along the bank of the Arroyo del Valle, with three in fair condition (#54, 55 and 57) and one in poor (#59).

Five (5) of the species surveyed were indigenous to the area. The remaining 5 species were exotics. Trunk diameters ranged from 9" to 36", and 23 trees had multiple stems arising below 54".

Average tree condition was poor, with 27 trees, or 52% of the population. Seventeen (17) trees (36%) were in fair condition, and eight (8) were in good (15%). The majority of the trees in poor condition were orchard trees, while the majority of those in good condition were riparian trees.

The City of Pleasanton defines any single-trunk tree with a diameter of 18" or greater or any multi-trunk tree with the cumulative diameters of the two largest stems equal to 18" or greater, or any tree 35' or taller, as Heritage. By these criteria, 40 trees qualified as Heritage, including three (3) of the landscape trees, 20 orchard trees, and 17 riparian trees. Heritage status for individual trees is included in the ***Tree Assessment Form*** (see attachments).

Table 1. Tree condition & frequency of occurrence.
Roselyn Estates II, Pleasanton.

Common Name	Scientific Name	Condition Rating			No. of
		Poor (1-2)	Fair (3)	Good (4-5)	trees
Raywood ash	*Fraxinus oxycarpa* 'Raywood'	1	-	-	1
Calif. black walnut	*Juglans hindsii*	3	6	3	12
English walnut	*Juglans regia*	20	2	-	22
Privet	*Ligustrum lucidum*	-	1	-	1
Monterey pine	*Pinus radiata*	1	1	2	4
Calif. sycamore	*Platanus racemosa*	-	-	1	1
Fremont cottonwood	*Populus fremontii*	1	3	-	4
Purple leaf plum	*Prunus cerasifera* 'Atropurpurea'	-	-	1	1
Arroyo willow	*Salix lasiolepis*	1	2	-	3
Common elderberry	*Sambucus nigra*	-	2	1	3
Total		27	17	8	52
		52%	33%	15%	100%

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment, and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Calif. sycamore #8 is a good example of such a tree.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, for example, English and Calif. black walnuts are sensitive to construction impacts, while arroyo willow is tolerant of site disturbance.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Invasiveness**
  Trees with the potential to invade an established forest, reproduce rapidly, and grow in sub-optimal environments are considered invasive. Species with these qualities may alter the function and aesthetics of the forest. No invasive species were surveyed at the Roselyn Estates II site.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment. Table 2, following page, provides a summary of suitability ratings. Suitability ratings for individual trees are provided in the ***Tree Assessment Forms*** (see attachments).

We consider trees with good suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Table 2: Tree Suitability for Preservation
Roselyn Estates II, Pleasanton.

Good	These are trees with good health and structural stability that have the potential for longevity at the site. Four (4) trees were of good suitability for preservation, including two (2) Monterey pines, one (1) common elderberry, and one (1) Calif. sycamore.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and monitoring, and may have shorter life-spans than those in the "good" category. Sixteen (16) trees were of moderate suitability for preservation, including seven (7) Calif. black walnuts, three (3) Fremont cottonwoods, two (2) common elderberries, and one each of arroyo willow, English walnut, privet, and purple-leaf plum.
Poor	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Thirty-two (32) trees were of poor suitability for preservation, including 21 English walnuts, five (5) Calif. black walnuts, two (2) Monterey pines, two (2) arroyo willows, and one each of Raywood ash, and Fremont cottonwood.

Preliminary Evaluation of Impacts and Recommendations

The Tree Survey was the reference point for tree health and condition. I referred to the Demolition and Grading and Utility Plans, prepared by DeBolt Civil Engineers (dated 2/28/2012) to estimate the impacts to trees from the proposed changes.

The Plan shows lot configurations for the 7 new lots, driveways, two new streets ('A' and 'B'), extension of the storm drain line from Lynn Drive and connection of the sewer line to Calico lane. A bioretention area is proposed in the southeast corner of the site, with a bioretention swale and a pedestrian path proposed between Street 'A' and the top of the creek bank. Accurate tree trunk locations for the trees within and adjacent to the creek were not shown on the plans.

Without accurate trunk locations for the creek trees, recommendations for preservation and removal of these trees are preliminary in nature. Where trees recommended for preservation are close to the proposed improvements, horizontal and vertical trunk elevations must be established before a final determination about impacts can be made.

Based on my assessment of the Plan, 30 trees would be directly impacted by the proposed improvements. Fifteen (15) would fall within the lot grading, 11 within the road, and four (4) within the sidewalk. Twenty-six (26) of the trees identified for removal were of poor suitability for preservation and 23 qualified as "Heritage". The City of Pleasanton requires a removal permit for the proposed removal of any "Heritage" tree. A list of the impacted trees, along with their "Heritage" status, is provided in Table 3 (following page).

The remaining 22 trees were outside the limits of grading and may be preserved. Twelve (12) of these were located within the riparian corridor and the other 10 were along the top of the creek bank. Seventeen (17) of the trees identified for preservation qualified as "Heritage". Preservation is predicated on following the recommendations provided the ***Tree Preservation Guidelines*** at the end of this document.

Ten (10) of the trees identified for preservation would be in close proximity to the trail and bioretention areas proposed along the top of the creek. Before a final determination of the impacts to these trees can be made, their horizontal and vertical trunk elevations must be established and plotted on all plans. Some of these trees may fall within the proposed trail and bioretention or may be impacted beyond their tolerance, requiring removal.

Appraisal of Value

The City of Pleasanton requires that the value of all of the surveyed trees be established. To accomplish this, I used the standard methods found in *Guide for Plant Appraisal*, 9th edition (published in 2000 by the International Society of Arboriculture, Champaign IL). In addition, I referred to *Species Classification and Group Assignment* (2004), a publication of the Western Chapter of the International Society of Arboriculture. These two documents outline the methods employed in tree appraisal.

The value of landscape trees is based upon four factors: size, species, condition and location. Size is measured as trunk diameter, normally 54" above grade. The species factor considers the adaptability and appropriateness of the plant in the East Bay area. The *Species Classification and Group Assignment* lists recommended species ratings and evaluations. Condition reflects the health and structural integrity of the individual, as noted in the ***Tree Survey Form***. Location considers the site, placement and contribution of the tree in its surrounding landscape.

The appraised value of the 30 trees recommended for removal was $38,900 (Table 4, page 8).

The appraised value of the 25 trees preliminarily identified for preservation was $55,950 (Table 5, page 9).

Table 3: Trees potentially impacted by development Roselyn Estates II, Pleasanton.

Tree No.	Species	Trunk diameter (in.)	Heritage?	Impacts
9	English walnut	30	Yes	Remove, within lot 7 grading.
10	English walnut	26	Yes	Remove, within lot 6 footprint.
11	English walnut	11,6,5	No	Remove, within lot 5 grading.
12	Purple leaf plum	5,4,2.2,2	No	Remove, within road.
13	English walnut	28	Yes	Remove, within lot 5 footprint.
14	English walnut	29	Yes	Remove, within lot 5 footprint.
15	Calif. black walnut	27	Yes	Remove, within road.
16	English walnut	10,10,9,7	Yes	Remove, within sidewalk.
17	English walnut	29	Yes	Remove, within road.
18	English walnut	29	Yes	Remove, within road.
19	English walnut	10,7	No	Remove, within sidewalk.
20	English walnut	11,10	Yes	Remove, within lot 1 drive.

(Continued, following page)

Table 3: Trees potentially impacted by development, continued
Roselyn Estates II, Pleasanton.

Tree No.	Species	Trunk diameter (in.)	Heritage?	Impacts
23	English walnut	25	Yes	Remove, within lot 1 footprint.
24	English walnut	24	Yes	Remove, within lot 1 footprint.
25	Calif. black walnut	20,18	Yes	Remove, within sidewalk.
26	English walnut	18	Yes	Remove, within road.
27	Calif. black walnut	22	Yes	Remove, within road.
28	Calif. black walnut	33	Yes	Remove, within road.
29	English walnut	12,10,9	Yes	Remove, within lot 1 grading.
30	English walnut	22	Yes	Remove, within lot 1 grading.
31	English walnut	23	Yes	Remove, within lot 2 drive.
32	English walnut	22	Yes	Remove, within lot 2 footprint.
33	English walnut	27	Yes	Remove, within lot 2 grading.
34	Calif. black walnut	28	Yes	Remove, impacted by road & SD.
35	Monterey pine	19,18	Yes	Remove, within road.
38	Arroyo willow	18	Yes	**Preserve**, outside impacts.
39	English walnut	15,5	Yes	**Preserve**, possibly within trail.
40	Calif. black walnut	11,10,9	Yes	**Preserve**, outside impacts.
41	Common elderberry	6,2,2	No	**Preserve**, possibly within trail.
42	Calif. black walnut	19,18	Yes	**Preserve**, outside impacts.
43	Monterey pine	20	Yes	**Preserve**, possibly within trail.
44	English walnut	25	Yes	**Preserve**, possibly impacted by trail.
45	Monterey pine	12	No	**Preserve**, possibly within trail.
46	Monterey pine	24	Yes	**Preserve**, possibly within trail.
47	Calif. black walnut	19	Yes	**Preserve**, possibly within trail.
48	Calif. black walnut	22,19,17	Yes	**Preserve**, possibly impacted by trail.
49	Common elderberry	9	No	**Preserve**, possibly impacted by trail.
50	Common elderberry	6,5	No	**Preserve**, outside impacts.
51	Arroyo willow	18	Yes	**Preserve**, outside impacts.
52	Calif. black walnut	6,4,4,3	No	Remove, within road.
53	Calif. black walnut	17	No	**Preserve**, possibly impacted by trail.
54	Fremont cottonwood	22	Yes	**Preserve**, outside impacts.
55	Fremont cottonwood	36,18	Yes	**Preserve**, outside impacts.
56	Arroyo willow	13,9,6	Yes	**Preserve**, outside impacts.
57	Fremont cottonwood	36	Yes	**Preserve**, outside impacts.
58	Calif. sycamore	26,24,12,10	Yes	**Preserve**, outside impacts.
59	Fremont cottonwood	15,15,6	Yes	**Preserve**, outside impacts.
60	Calif. black walnut	12,10,4	Yes	**Preserve**, outside impacts.
61	Privet	9,7,6,5	No	Remove, within lot 5 drive.
63	Raywood ash	14	No	Remove, within lot 2 footprint.

Table 4: Appraised value of trees recommended for removal
Roselyn Estates II, Pleasanton

Tree No.	Species	Trunk diameter (in.)	Heritage?	Appraised value ($)
9	English walnut	30	Yes	2,500
10	English walnut	26	Yes	3,750
11	English walnut	11,6,5	No	450
12	Purple leaf plum	5,4,2,2,2	No	700
13	English walnut	28	Yes	2,150
14	English walnut	29	Yes	3,500
15	Calif. black walnut	27	Yes	3,000
16	English walnut	10,10,9,7	Yes	600
17	English walnut	29	Yes	600
18	English walnut	29	Yes	600
19	English walnut	10,7	No	200
20	English walnut	11,10	Yes	250
21	English walnut	11,10,10	Yes	600
22	English walnut	9,7	No	150
23	English walnut	25	Yes	850
24	English walnut	24	Yes	2,400
25	Calif. black walnut	20,18	Yes	3,100
26	English walnut	18	Yes	450
27	Calif. black walnut	22	Yes	1,350
28	Calif. black walnut	33	Yes	2,950
29	English walnut	12,10,9	Yes	650
30	English walnut	22	Yes	650
31	English walnut	23	Yes	750
32	English walnut	22	Yes	650
33	English walnut	27	Yes	2,000
34	Calif. black walnut	28	Yes	2,150
35	Monterey pine	19,18	Yes	750
52	Calif. black walnut	6,4,4,3	No	400
61	Privet	9,7,6,5	No	200
63	Raywood ash	14	No	550
Total				**38,900**

Table 5: Appraised value of trees recommended for preservation
Roselyn Estates II, Pleasanton

Tree No.	Species	Trunk diameter (in.)	Heritage?	Appraised value ($)
38	Arroyo willow	18	Yes	1,300
39	English walnut	15,5	Yes	350
40	Calif. black walnut	11,10,9	Yes	1,450
41	Common elderberry	6,2,2	No	400
42	Calif. black walnut	19,18	Yes	5,050
43	Monterey pine	20	Yes	1,350
44	English walnut	25	Yes	850
45	Monterey pine	12	No	350
46	Monterey pine	24	Yes	1,900
47	Calif. black walnut	19	Yes	3,500
48	Calif. black walnut	22,19,17	Yes	7,850
49	Common elderberry	9	No	1,200
50	Common elderberry	6,5	No	500
51	Arroyo willow	18	Yes	1,300
53	Calif. black walnut	17	No	2,000
54	Fremont cottonwood	22	Yes	2,300
55	Fremont cottonwood	36,18	Yes	6,650
56	Arroyo willow	13,9,6	Yes	350
57	Fremont cottonwood	36	Yes	5,850
58	Calif. sycamore	26,24,12,10	Yes	9,000
59	Fremont cottonwood	15,15,6	Yes	1,000
60	Calif. black walnut	12,10,4	Yes	1,450
38	Arroyo willow	18	Yes	1,300
39	English walnut	15,5	Yes	350
40	Calif. black walnut	11,10,9	Yes	1,450
Total				**55,950**

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained at 4100 Foothill Rd. that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading and the construction methods.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. Any changes to the plans affecting the trees shall be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, demolition plans, site plans, improvement plans, utility and drainage plans, grading plans, and landscape and irrigation plans.

2. Have the vertical and horizontal locations of the following 10 trees established and plotted on all plans: #39, 41, 43-49, and 53. Forward a copy of the plans with the tree locations to the Consulting Arborist for a final determination of tree impacts.

3. A **TREE PROTECTION ZONE (TPZ)** shall be established around each tree to be preserved. No grading, excavation, construction or storage of materials shall occur within that zone. For design purposes, the **TPZ** shall be established at the dripline. Once the Consulting Arborist has reviewed tree locations and made a final determination of impacts to trees, **TPZ's** for each tree to be preserved will be provided.

4. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**.

5. Irrigation systems must be designed so that no trenching will occur within the **TREE PROTECTION ZONE**.

6. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.

7. As trees withdraw water from the soil, expansive soils may shrink within the root area. Therefore, foundations, footings and pavements on expansive soils near trees should be designed to withstand differential displacement.

Pre-construction treatments and recommendations

1. Fence all trees to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by the Consulting Arborist. Fences are to remain until all grading and construction is completed.

2. Currently, five trees identified for preservation will require pruning to provide construction clearance, including #38-40, 42 and 54. All pruning shall be completed by a Certified Arborist or Tree Worker and adhere to the latest edition of the ANSI Z133 and A300 standards as well as the *Best Management Practices – Tree Pruning* published by the International Society of Arboriculture. Brush shall be chipped and spread beneath the trees within the **TREE PROTECTION ZONE.**

3. Tree(s) to be removed that have branches extending into the canopy of tree(s) to remain must be removed by a qualified arborist and not by demolition or construction contractors. The qualified arborist shall remove the tree in a manner that causes no damage to the tree(s) and understory to remain.

4. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.

5. Any brush clearing required within the **TREE PROTECTION ZONE** shall be accomplished with hand-operated equipment.

6. All down brush and trees shall be removed from the **TREE PROTECTION ZONE** either by hand, or with equipment sitting outside the **TREE PROTECTION ZONE**. Extraction shall occur by lifting the material out, not by skidding across the ground.

Recommendations for tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.

2. Any grading, construction, demolition or other work that is expected to encounter tree roots should be monitored by the Consulting Arborist.

3. Fences have been erected to protect trees to be preserved. Fences define a specific **TREE PROTECTION ZONE** for each tree or group of trees. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the Consulting Arborist.

4. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.

5. Prior to grading, pad preparation, excavation for foundations/footings/walls, trenching, trees may require root pruning outside the **TREE PROTECTION ZONE** by cutting all roots cleanly to the depth of the excavation. Roots shall be cut by manually digging a trench and cutting exposed roots with a hand saw, a vibrating knife, rock saw, or other approved root pruning equipment. The Consulting Arborist will identify where root pruning is required.

6. Any root pruning required for construction purposes shall receive the prior approval of and be supervised by the Consulting Arborist.

7. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

8. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.

9. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

Maintenance of impacted trees

Trees preserved at Roselyn Estates II may experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. As trees age, the likelihood of failure of branches or entire trees increases. Thus, it is recommended that the property owner have the trees inspected annually for hazard potential.

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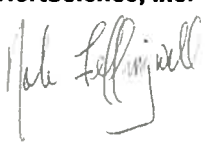


John Leffingwell
Board Certified Master Arborist #WE-3966B
Registered Consulting Arborist #442

Tree Assessment

Roselyn Estates II
1623 Cindy Way, Parcel B
Pleasanton, CA
August 2012

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
9	English walnut	30	Yes	2	Poor	Extensive dieback; trunk wounds with decay.
10	English walnut	26	Yes	3	Moderate	Multiple attachments at 4'; spreading form.
11	English walnut	11,6,5	No	2	Poor	Extensive dieback; history of branch failure; branches broken.
12	Purple leaf plum	5,4,2.2,2	No	4	Moderate	Multiple attachments at 1'; narrow attachments.
13	English walnut	28	Yes	2	Poor	Dieback thrughout crown; water stressed; bee hive in trunk below attachments.
14	English walnut	29	Yes	3	Poor	Dieback in upper crown; trunk & branch wounds.
15	Calif. black walnut	27	Yes	3	Poor	English walnut died; root stock is taking over; dead stems; poorly pruned.
16	English walnut	10,10,9,7	Yes	2	Poor	Extensive dieback throughout crown; water stressed.
17	English walnut	29	Yes	1	Poor	Dead top; root stock sprouts at base; basal cavity; all but dead.
18	English walnut	29	Yes	1	Poor	All but dead.
19	English walnut	10,7	no	1	Poor	Dieback throughout crown; extensive trunk wounds.
20	English walnut	11,10	Yes	1	Poor	Extensive dieback throughout crown; trunk & branch wounds.
21	English walnut	11,10,10	Yes	2	Poor	Dieback throughout crown; water stressed.
22	English walnut	9,7	no	1	Poor	Extensive dieback throughout crown; water stressed; broken branches.
23	English walnut	25	Yes	2	Poor	Dieback throughout crown; engulfed in ivy.
24	English walnut	24	Yes	2	Poor	Dieback throughout crown; basal wound.
25	Calif. black walnut	20,18	Yes	3	Moderate	Codominant trunks at 3'; basal wound north; dieback to 2".
26	English walnut	18	Yes	1	Poor	Extensive dieback; one-sided south.
27	Calif. black walnut	22	Yes	2	Poor	Multiple attachments at 5'; extensive trunk decay west.
28	Calif. black walnut	33	Yes	2	Poor	Extensive trunk decay east; dieback; history of branch failure; thin crown.
29	English walnut	12,10,9	Yes	2	Poor	Dieback throughout crown.
30	English walnut	22	Yes	2	Poor	Extensive dieback; engulfed in ivy.

Tree Assessment

Roselyn Estates II
1623 Cindy Way, Parcel B
Pleasanton, CA
August 2012

HORT SCIENCE

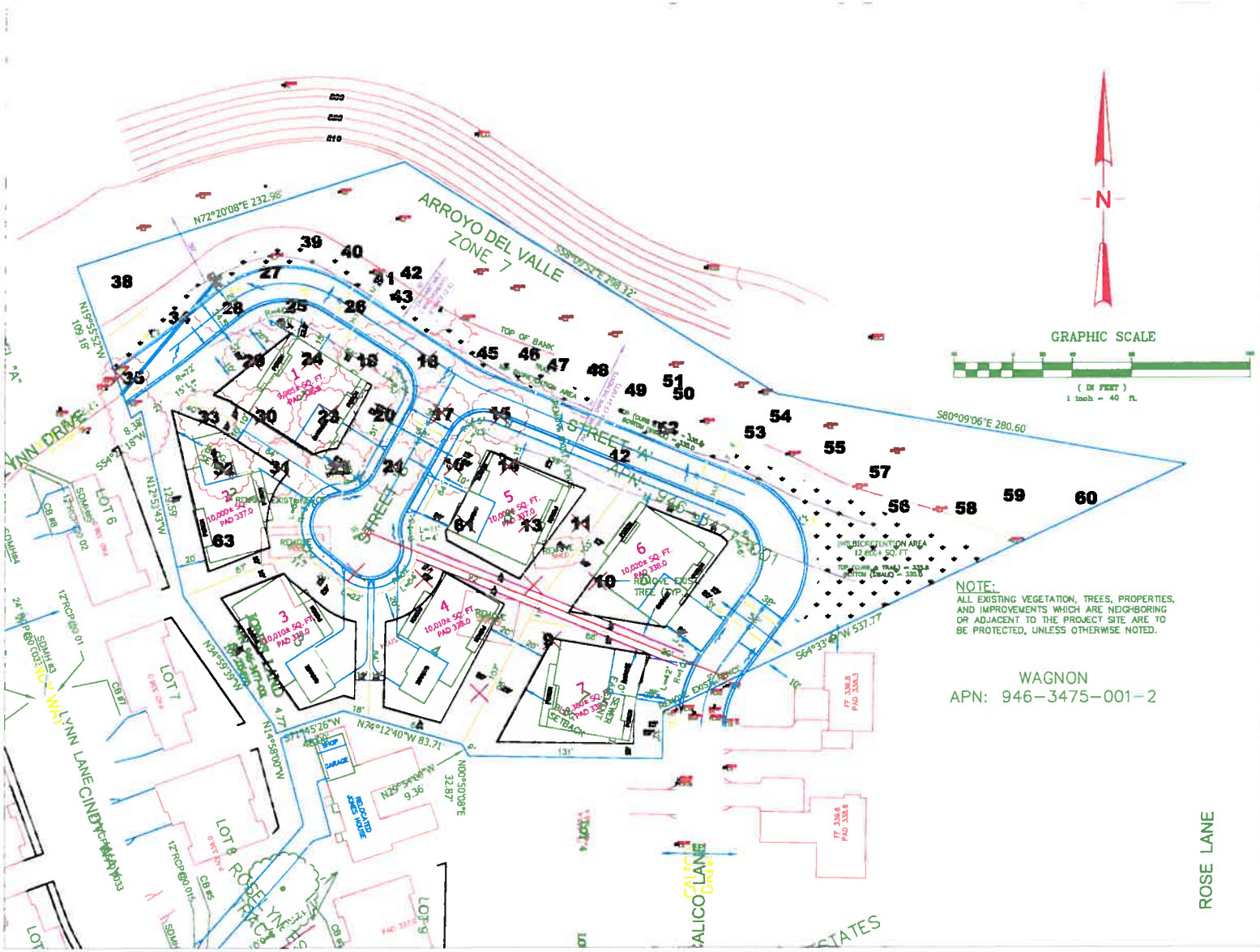
Tree No.	Species	Trunk Diameter (in.)	Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
31	English walnut	23	Yes	1	Poor	Extensive dieback; engulfed in ivy; broken branches.
32	English walnut	22	Yes	2	Poor	Dieback throughout crown; water stressed; broken branches.
33	English walnut	27	Yes	2	Poor	Dieback throughout crown; water stressed.
34	Calif. black walnut	28	Yes	2	Poor	Extensive trunk decay north; leans south; history of branch failure; twig and branch dieback.
35	Monterey pine	19,18	Yes	2	Poor	Codominant trunks at 3'; narrow attachment; crown seperating.
38	Arroyo willow	18	Yes	3	Poor	Off-site, no tag; growing down-slope in creek; extends 10' south over property; leans W.
39	English walnut	15,5	Yes	1	Poor	Off-site; all but dead; extensive trunk decay; extends 5' south over property.
40	Calif. black walnut	11,10,9	Yes	3	Moderate	Off-site; growing down-slope; extends 5' south over property; twig dieback.
41	Common elderberry	6,2,2	No	3	Moderate	Off-site; multiple attachments at base; leans 10' south over property; damage to both small stems; 6" okay.
42	Calif. black walnut	19,18	Yes	4	Moderate	Off-site, no tag; growing down-slope; good form and structure; extends 15' south over property; twig dieback.
43	Monterey pine	20	Yes	4	Good	Off-site; good form and structure; extends 15' south over property; codominant high in crown.
44	English walnut	25	Yes	1	Poor	Off-site; English walnut dead; black walnut sprouts remain; extends 15' south over property.
45	Monterey pine	12	No	3	Poor	Off-site; dead top; extends 10' south over property.
46	Monterey pine	24	Yes	4	Good	Off-site; one-sided south; extends 20' south over property.
47	Calif. black walnut	19	Yes	4	Moderate	Off-site, no tag; slight lean west; basal cavity; extends 15' south over property.

Tree Assessment

Roselyn Estates II
1623 Cindy Way, Parcel B
Pleasanton, CA
August 2012

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Heritage?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
48	Calif. black walnut	22,19,17	Yes	4	Moderate	Off-site, no tag; multiple attachments; could not inspect base; extends 25' south over property; small basal wound on W.; top of bank.
49	Common elderberry	9	No	4	Good	Off-site; multiple attachments at base; leans south.
50	Common elderberry	6,5	No	3	Moderate	Off-site, codominant trunks at base; suppressed by #51
51	Arroyo willow	18	Yes	3	Moderate	Off-site; growing at top of bank; extensive erosion; failed and laying on ground.
52	Calif. black walnut	6,4,4,3	No	3	Poor	Multiple attachments at base; growing against shack.
53	Calif. black walnut	17	No	3	Moderate	Off-site; growing down-slope; suppressed by #54; leans southwest.
54	Fremont cottonwood	22	Yes	3	Moderate	Off-site; growing down-slope; suppressed by #55; leans southwest.
55	Fremont cottonwood	36,18	Yes	3	Moderate	Off-site; growing down-slope; leans north to creek; dieback in upper crown.
56	Arroyo willow	13,9,6	Yes	2	Poor	Off-site; growing at top of bank; extensive dieback; leans north to creek; extensive trunk wounds.
57	Fremont cottonwood	36	Yes	3	Moderate	Off-site, no tag; multiple attachments at 10'; growing down-slope; dieback.
58	Calif. sycamore	26,24,12,10	Yes	4	Good	Off-site; multiple attachments at base; anthracnose; engulfed in berries; could not inspect base.
59	Fremont cottonwood	15,15,6	Yes	2	Poor	Off-site, no tag; growing down-slope; rip rap against trunk; dieback.
60	Calif. black walnut	12,10,4	Yes	3	Moderate	Off-site, no tag; growing down-slope; dead wood to 2".
61	Privet	9,7,6,5	No	3	Moderate	Multiple attachments at base; embedded in fence;
63	Raywood ash	14	No	2	Poor	Extensive dieback in upper crown.



Tree Assessment Map

Roselyn Estates II
Pleasanton, CA

Prepared for:
Roselyn Estates, LLC
c/o Mr. Lynn Jansen
Diablo, CA

August 2012

No Scale

Notes:
Base map provided by:
DeBolt Civil Engineering
Danville, CA

Numbered tree locations are approximate.

HORT SCIENCE

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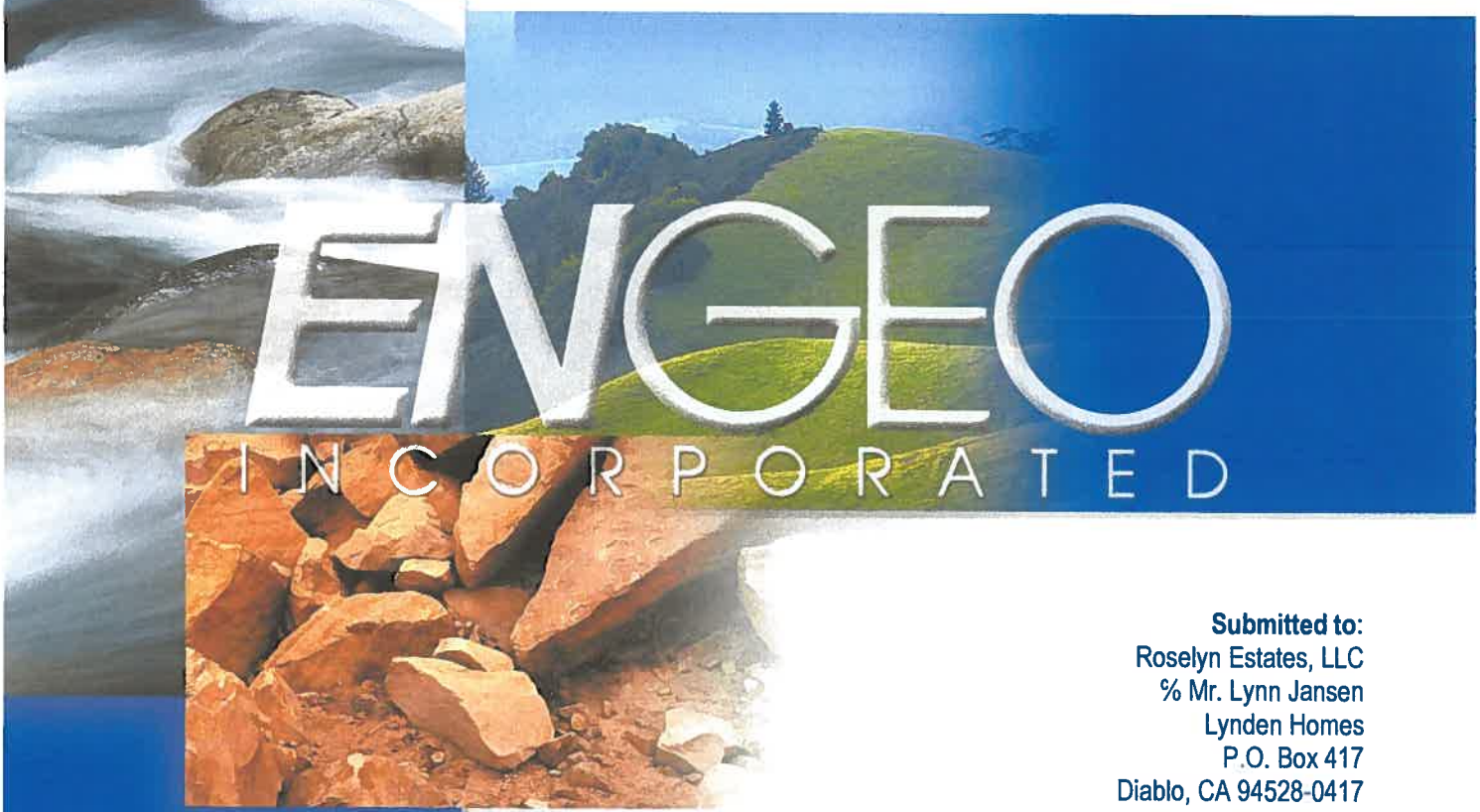
GEOTECHNICAL EXPLORATION

ROSELYN ESTATES II PROPERTY

PLEASANTON, CALIFORNIA



Submitted to:
Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

Prepared by:
ENGEO Incorporated

August 1, 2012

Project No:
4425.000.000

PUD-94
EXHIBIT B

- Expect Excellence -

Project No.
4425.000.000

August 1, 2012

Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

Subject: Roselyn Estates II Property
1623 Cindy Way – Parcel B
Pleasanton, California

GEOTECHNICAL EXPLORATION

Dear Mr. Jansen:

ENGEO prepared this geotechnical report for proposed residential development as outlined in our agreement dated November 3, 2011. We characterized the subsurface conditions at the site to provide the enclosed geotechnical recommendations for design.

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to review the project plans and specifications and provide geotechnical observation and testing services during construction. Please let us know when working drawings are nearing completion, and we will be glad to discuss these additional services with you.

If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

Jennifer R. Botelho, PG

Donald E. Bruggers, GE

REGISTERED PROFESSIONAL ENGINEER
DONALD BRUGGERS
No. 2094
Exp. 12/31/2013
GEOTECHNICAL
STATE OF CALIFORNIA

Randy Hildebrant, PE
jrb/deb/rh/jf:gex

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this geotechnical report is to evaluate the geologic conditions of the site and to provide geotechnical conclusions and recommendations for the grading and foundation design for the proposed single-family home development at the Roslyn Estates II Property in Pleasanton, California.

The scope of our services included:

- Reviewing available literature, geologic maps, and previous geotechnical reports pertinent to the site.
- Drilling four exploratory borings at within the site.
- Sampling and laboratory testing of subsurface materials during exploration.
- Geologic mapping of the creek banks adjacent to the site.
- Analyzing the geotechnical field and laboratory data.
- Reporting our findings and recommendations.

This report was prepared for the exclusive use of Roselyn Estates LLC and its design team consultants. In the event that any changes are made in the character, design or layout of the development, the conclusions and recommendations contained in this report should be reviewed by ENGEO Incorporated to determine whether modifications to the report are necessary. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without the express written consent of ENGEO Incorporated.

1.2 PROJECT LOCATION

The Roselyn Estates II Property is located east of Cindy Way and Lynn Drive, north of Rose Avenue and the Alameda County Fairgrounds, and south of Arroyo Del Valle Creek as shown on the Vicinity Map, Figure 1. The property contained a residence with several detached buildings, a pool with associated flat work surrounded by a small orchard on the northwestern portion of the property. The eastern portion of the property is vacant. Recently a residence was moved from the center of the property to a lot with driveway access from Cindy Way. The residence utilized a well and septic system; to our knowledge they are still present but are no longer in use.

According to the Jones House Relocation Plan prepared by Debolt Civil Engineering dated February 15, 2011, the site topography is relatively level, ranging in elevation of approximately 335 to 338 feet above mean sea level (msl) (DeBolt, 2011). During construction of the foundation for the relocated home, material was borrowed from the center-west side of the

property creating a shallow depression in this area. The creek bank is approximately 30 feet high and with the upper approximately 15 feet at or near vertical at several locations. The creek bank and slopes contained a significant amount of accumulated debris, including metal siding and/or roofing panels, concrete, lumber and wood fencing, metal fencing, and dead vegetation.

1.3 PROPOSED DEVELOPMENT

According to the Possible Lot Configuration Plan developed by DeBolt Civil Engineering dated February 15, 2011, the property is to be subdivided into seven lots approximately 10,000 square feet in size. Each parcel will have a one-or two-story single-family home (Figure 2). Lynn Drive will be extended adjacent to Arroyo Del Valle Creek and connect to Calico Drive. The seven parcels will be accessed via a hammerhead on Lynn Drive. A 12-foot-wide bioretention area and 8-foot-wide trail are proposed between Lynn Drive and the existing creek bank. The current site plan depicts Lynn Drive and all non-habitable improvements setback from a 2:1 (horizontal:vertical) line of projection from the toe of the creek bank Habitable improvements are setback from a 3:1 line of projection plus 15 horizontal feet from the toe of the creek bank.

We anticipate that the site grading will consist of minor cutting and filling to establish relatively level building pads.

1.4 PREVIOUS EXPLORATION

ENGEO previously performed a geotechnical feasibility study dated February 18, 1998, on the adjacent properties on Cindy Way. In this study, we advanced four borings on January 16, 1998, to a depth of approximately 39.5 feet (see boring logs in Appendix D). The subsurface soils generally consisted of clayey silt to silty clay, intermixed with various percentages of sand and fine gravel. Thinly bedded layers of silty and clayey sand or fine gravel were also encountered in Borings 1, 3 and 4 at various elevations. Groundwater was encountered in Boring 1 at a depth of approximately 31 feet below the existing ground elevation.

2.0 FINDINGS

2.1 FIELD EXPLORATION

Our field exploration included drilling four borings on December 15 and 16, 2011. The approximate boring locations are shown on the Site Plan, Figure 2. Borings 1-B1 and 1-B2 were drilled to depths of approximately 51½ feet. Borings 1-B3 and 1-B4 were drilled to depths of approximately 21½ feet below existing grade. The exploratory borings were approximately located by visual sighting from existing features and the locations should be considered accurately located only to the degree implied by the method used.

Exploratory borings were drilled using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers for Borings 1-B1 and 1-B2 and 6-inch-diameter hollow stem augers for Borings 1-B3 and 1-B4. Soil samples recovered during drilling were retrieved using a 3-inch

outside-diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, or a 2-inch O.D. Standard Penetration Test (SPT) split-spoon sampler. The split-spoon samplers were driven with a 140-pound auto-safety hammer falling a distance of 30 inches. The penetration of the sampler was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments. The boring logs show the number of blows required for the last one foot of penetration, and the blow counts have not been converted using any correction factors.

An ENGEO Geologist logged the boreholes in the field. The field logs were then used to develop the report boring logs in Appendix A. The logs depict subsurface conditions within the boring for the date of drilling; however, subsurface conditions may vary with time.

2.2 SITE BACKGROUND

Aerial photographs were studied in previous studies of the project site. The photographs revealed that a pervious residential structure was constructed prior to the 1950s. The area surrounding the residence consisted of walnut orchards until the late 1970s. In 2011, the residential structure was relocated approximately 20 feet north. The pool, old house foundation, and several out buildings were present at the time of our investigation. The location of the existing pool is shown on Figure 2.

2.3 GEOLOGY AND SEISMICITY

2.3.1 Regional and Site Geology

The site is located in the Coast Ranges physiomorphic province of California within the Amador Valley. The bedrock to the southeast of the site within the valley is mapped as Pliocene and Pleistocene-age Livermore Gravels, and to the west of the site within the Coast Ranges is mapped as late Cretaceous Panoche formation, by Graymer et al. (1996) and by Dibblee (2005), as shown in the Regional Geologic Map of Figure 3. Regional bedrock structure is mapped as striking to the northwest and dipping at inclinations of about 15 to 25 degrees to the northeast.

Dibblee (2005) has mapped the surficial deposits at the site as Quaternary-aged alluvium (Qa) as shown in Figure 3. Within the creek, Arroyo Del Valle, at the east edge of the property, a small area is mapped as Quaternary-aged alluvium of Arroyo Laguna (Qg). Generally, these soils are variable in nature and consist of interbedded clays, silts, and sands with some pebbly gravels. Nilson (1975) also characterizes the soil as alluvium (Qal), and according to the published open file maps, no landslide features are mapped within the site.

2.3.2 Seismicity

No active faults are known to pass through the project site, according to published maps (Jennings, 1994). The site is not located within a State of California Earthquake Fault Zone (CDMG 1982). The nearest active fault is the Calaveras fault, which is located approximately 1.2 miles west of the site. Due to the presence of active faults in the Northern California region,

the area is considered seismically active. Numerous earthquakes occur every year in the region, and large (>M7) earthquakes can be expected to occur in the future. As with all projects in the region, the development should take into account the potential for moderate to strong earthquake ground shaking.

2.4 SURFACE CONDITIONS

The site topography is relatively level ranging in elevation between approximately 335 to 338 feet above mean sea level (msl) (DeBolt 2011). At the time of our site visits for this study, tall grasses, bushes, trees, and minor shrinkage cracks were observed throughout the site. As previously stated, an existing pool and foundations associated with the previously relocated residential structure are located at the approximate center of the project site. The previous residential driveway asphalt concrete has been removed; however, the aggregate base is present.

2.5 SUBSURFACE CONDITIONS

The site soils consist of interlayered lean silt and lean clay with sand and gravel lenses. Generally, fine-grained materials above the groundwater level were very stiff to hard and below groundwater were medium stiff to very stiff. Granular materials were generally medium dense with loose zones and dense zones. Borings B-1 and B-2 encountered a two- to three-foot-thick layer of loose to medium dense silty sand at a depth of about 34 feet and 41 feet below the ground surface, respectively. The soil encountered in Boring B-3 was predominantly granular consisting of silty sand interlayered with lean silt and lean clay. The sand was loose to dense. Groundwater was encountered in Borings B-1 and B-2 at approximately 35 feet below ground surface. During relocation of the Jones House in the southwest corner of the project site, loose and compressible silt was encountered in the upper 4 to 5 feet of the building pad.

The near-surface soil has a Plasticity Index (PI) of between 4 and 7. The test results indicate the surficial fill has a low expansion potential. PI tests from previous studies in the area indicate the surrounding soils have a moderate expansion potential. Therefore, we anticipate some variation in the expansive characteristics of the site soils.

2.6 GROUNDWATER CONDITIONS

Groundwater was encountered at a depth of about 35 feet below grade at the time of drilling in Boring 1-B1 and 1-B2. The boreholes were backfilled on the day of drilling with cement grout materials approved by Zone 7 Water District. Borings 1-B3 and 1-B4 were backfilled with cuttings as directed by a Zone 7 Water District representative.

Fluctuations in groundwater levels should be expected during seasonal changes or over a period of years because of precipitation changes, perched zones, and changes in drainage patterns.

2.7 LABORATORY TESTING

Samples recovered during borehole drilling were tested to determine the following soil characteristics:

TABLE 2.7-1
Soil Characteristics

Test	Designation	Location of Results
Natural Unit Weights and Moisture Contents	ASTM D-2216	Appendix A
Atterberg Limits	ASTM D-4318	Appendix B
Gradation	ASTM D-1140	Appendix B
Hydrometer	ASTM D-422	Appendix B

The laboratory test results are shown on the boring logs (Appendix A). Results of individual laboratory tests are presented in Appendix B.

2.8 CREEK BANK STABILITY ANALYSES

The site is located adjacent to Arroyo Del Valle Creek. Sloughing of soils along portions of the creek bank have been observed and mapped (Figure 2). There are several locations of recent bank failures with near-vertical scarps up to approximately 15 feet in height. The failure debris is generally vegetated with berry bushes and vines which obscure the soil; therefore, it is difficult to observe the relative amount of actual vegetated soil vs. soil covered by foliage. There is also evidence of older bank failures which have established older vegetation including small trees. From the site plan, Figure 2, the northeast side of the property appears to have the greatest number of recent bank failures and undercut trees. The northwestern portion of the property, which is located on an inside bend of the creek appears to have a flatter, relatively more stable slope configuration. Several large diameter trees are growing on the creek bank; however, during our observation, we noted that many of the trees have exposed roots with substantial voids under the trees from creek undercutting or slope erosion. It appears that concrete was placed at the bottom of the creek bank in an effort to limit erosion in several areas. There is also an accumulation of concrete, building debris, and vegetation debris along the top edge of the slope.

2.8.1 Method of Analysis

Geotechnical evaluation of slope stability requires careful assessment of input parameters along with the selected method of analysis. While there are many different methods of stability analysis and numerous available computer programs, we selected the program SLIDE 6.0 produced by Roc Science. Limit equilibrium slope stability analyses was performed using Morgenstern and Price (1965) and Spencer (1967) method for slices. For our analyses, both undrained and drained strength parameters were used to determine the factor of safety for both long-term and short-term loading. A circular failure surface was used to determine the critical failure surface to recommend a structural setback.

In evaluating the stability of slopes under seismic conditions, we used a "pseudo-static" method of analysis as a screening analysis. SP117A states that slopes that have a pseudo-static factor of safety greater than 1.0 using a seismic coefficient derived from the screening analysis procedure of Stewart and others (2003) can be considered stable. The pseudo-static coefficient used was determined to be 0.42PGA (0.21g) based on 15 cm threshold of displacement as recommended by Stewart and others (2003). SP117A recommends as a general guideline that displacements of 0 to 15 cm are unlikely to correspond to serious landslide movement and damage.

2.8.2 Acceptable Factors of Safety

The minimum allowable factor of safety with respect to slope stability commonly ranges from 1.5 to 3 for static cases and 1 to 1.5 for seismic cases. Based on local geotechnical practice, in our opinion, we recommend that a static factor of safety of 1.5 and a pseudo-static factor of safety of 1.0 be considered adequate for the slope stability. We considered the various levels of conservatism involved in determining the engineering properties of the soil (density, shear strength, unit weight, permeability, etc...), the assumptions made in the method of analysis, nd potential variations in field conditions.

2.8.3 Geometry and Idealized Soil Profiles

Topographic data was obtained from the Possible Lot Configuration Plan for the Roselyn Estates II (Jones Property) dated February 15, 2011, developed by DeBolt Civil Engineering. Limited survey data was taken at the top and toe of the creek bank. The slope geometries depicted in cross-sections A-A' through D-D' included in Appendix C were modified from that shown on the plan by DeBolt based on our observations of the creek banks.

Prior to performing slope stability analyses, we evaluated the shear strength of the soil profile. To obtain shear strength values used in our analysis, we performed in-situ SPT tests and various laboratory tests. We reviewed the raw lab strength data and compared it with empirical correlations of SPT blow counts, plasticity index (PI), and soil type. Based on our data review, we developed the idealized soil profiles shown in Appendix C. The shear strength values were primarily derived from in-situ SPT data, correlations with PI and soil types using recommendations from Stark and Eid, 1997 and Bjerrum and Simons 1960, and unconfined compression strengths. With PI ranging between 6 and 15 for the fine- rained material, an effective stress internal angle of friction ϕ' of between 27 and 31 degrees and a cohesion of 100 to 200 psf was estimated. Residual shear strengths for the potentially liquefiable material was determined using recommendations from Seed and Harder, 1990 and Mitchell and Soga 2005. The liquefied soil was estimated to have a residual undrained shear strength of approximately 400 psf.

2.8.3.1 Rapid Drawdown

During rapid drawdown, the stabilizing effect of the water on the slope is lost, but the pore-water pressures within the embankment may remain high; as a result, the stability of the slope may be reduced. The saturation and dissipation of pore-water pressure in the slope is largely influenced

by the permeability of the soil. A detailed hydrologic study was performed in parallel with this geotechnical study. From this study, it is estimated that the flood elevation for the 100-year event will have a relatively short duration. Due to the creek bank consisting of predominantly stiff to hard fine-grained soil, and the short duration of the flood event, it is our opinion that the potential of the slope to saturate from a flooding event is low; therefore, rapid drawdown was not analyzed in this study.

2.8.4 Results of Analyses

We performed slope stability analysis for static conditions, pseudo-static conditions, and for the case where the slope is reinforced with geogrid. Reinforcement was modeled with two layers of Tensar UX1400HS geogrid 15 feet in length located 4 feet and 5 feet below the ground surface as shown in Figure 6. The geogrid is centered beneath the interception of the 2:1(horizontal:vertical) projection from the toe of the creek bank with the ground surface, or approximately 54 feet inward from the toe of the creek bank. The water elevation during static and pseudo-static conditions was modeled at elevation 308 feet, the toe elevation of the slope. The slope stability analysis indicates drained strength parameters govern the static stability of the creek. Seismic stability was analyzed using undrained strength parameters. Individual analyses are presented in Appendix C.

The results of our analyses are summarized in Tables 2.8.4-1 below.

TABLE 2.8.4-1
Summary of Slope Stability Analyses

Section A to A'		
Loading Condition	Calculated Factor of Safety	Acceptable Minimum Factor of Safety
Static (unreinforced)	1.0	1.5
Static (reinforced)	1.6	1.5
Pseudo-Static	1.3	1.0
Section B to B'		
Loading Condition	Calculated Factor of Safety	Acceptable Minimum Factor of Safety
Static (unreinforced)	1.4	1.5
Static (reinforced)	1.5	1.5
Pseudo-Static	1.4	1.0
Section C to C'		
Loading Condition	Calculated Factor of Safety	Acceptable Minimum Factor of Safety
Static (unreinforced)	1.2	1.5
Static (reinforced)	1.6	1.5
Pseudo-Static	1.4	1.0

Section D to D'		
Loading Condition	Calculated Factor of Safety	Acceptable Minimum Factor of Safety
Static (unreinforced)	1.5	1.5
Static (reinforced)	1.6	1.5
Pseudo-Static	1.1	1.0

The results of the analysis show that a 2:1 setback does not yield an acceptable minimum factor of safety without the use of geogrid reinforcement.

3.0 CONCLUSIONS

From a geotechnical engineering viewpoint, in our opinion, the site is suitable for the proposed development, provided the geotechnical recommendations in this report are properly incorporated into the design plans and specifications.

The primary geotechnical concerns that could affect development on the site are the presence of the existing pool and septic system, the existing fill, creek bank stability, expansive soil, and seismic settlement. We summarize our conclusions below.

3.1 EXISTING FILL

Boring B-3 encountered aggregate base fill associated with the previous residential driveway. It is anticipated that areas immediately surrounding the previous location of the residential house may be underlain by non-engineered fill.

Non-engineered fills can undergo excessive settlement, especially under new fill or building loads. Without proper documentation of existing fill placed on the site, we recommend complete removal and recompaction of the existing fill. There is also an existing leach field, pool, well, and other out buildings near the old residence. The leach field is not in use and should be properly abandoned. Any existing fill or improvements associated with the leach field, pool, well, or other out buildings should be treated as non-engineered material. These structures should be removed and differential fills resulting from subecxation should not exceed 5 feet. We present fill removal and replacement recommendations in Section 6.0 Earthwork Recommendations.

3.2 CREEK BANK STABILITY

As previously discussed, the existing creek bank shows evidence of ongoing erosion and localized slumping. Similar erosion and slumping should be expected in the future. In the section titled "Slope Setback Recommendations", we provide recommended setbacks to address the concern of erosion and slope instability.

3.3 EXPANSIVE SOIL

We encountered potentially expansive lean clay and silt near the surface of the site in our exploration borings. Our laboratory testing indicate that these soils exhibit low to moderate shrink/swell potential with variations in moisture content.

Expansive soils change in volume with changes in moisture. They can shrink or swell and cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soils can be reduced by: (1) using a rigid mat foundation that is designed to resist the settlement and heave of expansive soil, (2) deepening the foundations to below the zone of moisture fluctuation, i.e. by using deep footings or drilled piers, and/or (3) using footings at normal shallow depths but bottomed on a layer of select fill having a low expansion potential.

Post-tensioned mat foundations are the preferred foundation system for the residential structures. Design criteria for this foundation type are presented in Section 6.0.

Successful performance of structures on expansive soils requires special attention during construction. It is imperative that exposed soils be kept moist prior to placement of concrete for foundation construction. It is extremely difficult to remoisturize clayey soils without excavation, moisture conditioning, and recompaction.

We have also provided specific grading recommendations for compaction of clay soil at the site. The purpose of these recommendations is to reduce the swell potential of the clay by compacting the soil at a high moisture content and controlling the amount of compaction. Expansive soil mitigation recommendations are presented in Section 6.5 of this report.

3.4 SEISMIC HAZARDS

California Geologic Survey (CGS), 2008, maps this site within a Seismic Hazard Zone for areas that may be susceptible to liquefaction. Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, landslides, tsunamis, or seiches is considered low to negligible at the site.

3.4.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.4.2 Ground Shaking

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. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the 2010 California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

3.4.3 Liquefaction

This site is mapped as potentially liquefiable by the 2008 CGS map. Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. Empirical evidence indicates that loose to medium dense gravels, silty sands, low-plasticity silts, and some low-plasticity clays are also potentially liquefiable.

We evaluated the liquefaction potential of the subsurface soil by collecting soil samples using a Standard Penetration Test (SPT) split-spoon sampler. Layers of sandy silt and silty sand were encountered below the groundwater table 34 and 41 feet below the ground surface in Borings B-1 and B-2, respectively. We performed analyses of these layers of low-plasticity silts and sands and found that they have the potential to liquefy during a seismic event. In performing our analyses, we used methods published by Youd et al. (2001), Seed et al. (2003), and Idriss & Boulanger (2008) to evaluate the liquefaction potential of the granular material. To evaluate the liquefaction potential of the fine-grained material, we used the recommendation presented in Bray and Sancio (2006). The recommendations correlate liquefaction susceptibility of fine-grained soils to their Plasticity Index (PI), Liquid Limit (LL), and natural water content (w_c). Recorded SPT blow count resistance (N-value) was corrected for sampler and hammer type, overburden pressure, boring diameter, and fines content. We assumed a groundwater level 27 feet below existing ground, a peak ground acceleration of 0.5g and a M_w of 6.8.

We evaluated the liquefaction potential for the soils encountered below the assumed water table. The results indicate that silty sand layers approximately 1 to 2 feet thick encountered at 34 feet below grade for Boring B-1 and 41 feet below grade for Boring B-2 are potentially liquefiable. In addition, low plasticity silt underlying the sand was found to be potentially liquefiable. The silt is estimated to have a plasticity index of approximately 6 to 7, a liquid limit of 26 to 27,

and a water content of 25 to 35%. Bray and Sancio (2006) found that soils with a PI<12 and a wc/LL > 0.85 were potentially liquefiable.

3.4.4 Lateral Spreading

Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) that causes the overlying soil mass to move toward a free face or down a gentle slope. Generally, the effects of lateral spreading are most significant at the free face or the crest of a slope and diminish with distance from the slope.

As discussed previously, the Arroyo Del Valle Creek is located along the northern boundary of the project site. We analyzed the stability of the creek with residual shear strength of the liquefied soil as previously discussed. It is our opinion that the potential for lateral spreading at the project site is low.

3.4.5 Seismic-Induced Settlement Analyses

Seismic-induced settlement can be generally subdivided into two categories, settlement as a result of liquefaction of saturated or nearly saturated soils and dynamic densification of non-saturated soils.

3.4.5.1 Liquefaction

Deformation of the ground surface is a common result of liquefaction. Vertical settlement may result from densification of the deposit or volume loss from venting to the ground surface. Densification occurs as excess pore pressures dissipate, resulting as vertical settlement at the ground surface.

We calculated potential settlement estimates based on the methods first proposed by Tokimatsu and Seed in 1987 and Ishihara and Yoshimine in 1992. Based on our liquefaction analysis, we estimate total theoretical liquefaction-induced volumetric strain settlements of approximately 1½ to 2 inches. The associated differential settlement is expected to be approximately ¾ to 1 inch.

3.4.5.2 Dynamic Densification

Densification of loose granular soils above the groundwater could cause settlement of the ground surface due to earthquake-induced vibrations. Our exploration encountered loose and medium dense silty sand in Borings B-3 and B-4. The sandy layers ranged between 3 to 6 feet thick. We calculated potential settlement estimates based on the methods first published by Tokimatsu & Seed in 1984. Settlement estimates result in potential theoretical dynamic densification induced settlement of up to ¾ inch

3.4.6 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soils. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible at the site as in other locations in the Bay Area region, but based on the site location, it is our opinion that the offset is expected to be very minor. We provide recommendations for foundation and pavement design in this report that are intended to reduce the potential for adverse impacts from lurch cracking.

3.4.7 Flooding

A detailed hydrologic study was performed in parallel with this study. The analysis indicates the potential flood elevation corresponding to a 100-year flood event to range between 322 to 327 feet elevation. The top of the creek bank ranges between 334 to337. Based on the site elevation, flooding is not expected at the subject site; however, the Civil Engineer should review pertinent information relating to possible flood levels for the subject site based on final pad elevations and provide appropriate design measures for development of the project, if necessary.

3.5 SOIL CORROSION POTENTIAL

During our field exploration, two additional near-surface soil samples were collected at the site for sulfate testing. The sulfate test results are included in Appendix B. According to the laboratory testing on the near-surface soils, the sulfate ion concentration to be 0.002% by weight.

The 2010 CBC references the 2008 American Concrete Institute Manual, ACI 318-08 (Chapter 4, Sections 4.2 and 4.3) for concrete requirements. ACI Tables 4.2.1 and 4.3.1 (Tables 3.5-1 and 3.5-2 below) provide the following sulfate exposure categories and classes and concrete requirements in contact with soil based upon the exposure risk.

TABLE 3.5-1
Sulfate Exposure Categories and Classes

Category S Sulfate	Exposure Class	Water- Soluble Sulfate in Soil	Dissolved Sulfate in Water
		% by Weight	mg/kg (ppm)
Not Applicable	S0	$SO_4 < 0.10$	$SO_4 < 150$
Moderate	S1	$0.10 \leq SO_4 < 0.20$	$150 \leq SO_4 \leq 1,500$ seawater
Severe	S2	$0.20 \leq SO_4 \leq 2.00$	$1,500 \leq SO_4 \leq 10,000$
Very Severe	S3	$SO_4 > 2.00$	$SO_4 > 10,000$

TABLE 3.5-2
Requirements for Concrete by Exposure Class

Exposure Class	Max w/cm	Min f'c (psi)	Cement Type			Calcium Chloride Admixture
			ASTM C150	ASTM C595	ASTM C1157	
S0	N/A	2,500	No Type restriction	No Type restriction	No Type restriction	No restriction
S1	0.5	4,000	II†‡	IP(MS), IS(<70) (MS)	MS	No restriction
S2	0.45	4,500	V‡	IP(HS) IS(<70) (HS)	HS	Not permitted
S3	0.45	4,500	V + pozzolan or slag§	IP(HS) + pozzolan or slag or IS(<70) (HS) + pozzolan or slag§	HS + pozzolan or slag§	Not permitted

Notes: † For seawater exposure, other types of portland cements with tricalcium aluminate (C_3A) contents up to 10 percent are permitted if the w/cm does not exceed 0.40.
‡ Other available types of cement such as Type III or Type I are permitted in Exposure Classes S1 or S2 if the C_3A contents are less than 8 or 5 percent, respectively.
§ The amount of the specific source of the pozzolan or slag to be used shall not be less than the amount that has been determined by service record to improve sulfate resistance when used in concrete containing Type V cement. Alternatively, the amount of the specific source of the pozzolan or slag to be used shall not be less than the amount tested in accordance with ASTM C1012 and meeting the criteria in ACI 4.5.1.

In accordance with the criteria presented in ACI 319-08, the test results are classified in the "Not Applicable" sulfate exposure class. Cement type and maximum water-cement ratio are not specified by the ACI for this class.

As minimum requirements, we recommend that Type II cement be used in foundation concrete for structures at the project site and concrete should incorporate a maximum water cement ratio of 0.5 and a minimum compressive strength of 3,000 psi. It should be noted, however, that the structural engineering design requirements for concrete might result in more stringent concrete specifications.

Testing was not completed for all depths of potential embedment. Once more specifics of the proposed improvements are known, we can provide additional testing and/or guidance regarding the exposure risk for sulfates.

3.6 2010 CBC SEISMIC DESIGN PARAMETERS

We provide the 2010 California Building Code (CBC) seismic parameters in Table 3.6-1 below.

TABLE 3.6-1
2010 CBC Seismic Design Parameters

Parameter	Design Value
Site Class	D
0.2 second Spectral Response Acceleration, S_S	1.85
1.0 second Spectral Response Acceleration, S_1	0.68
Site Coefficient, F_A	1.0
Site Coefficient, F_V	1.5
Maximum considered earthquake spectral response accelerations for short periods, S_{MS}	1.85
Maximum considered earthquake spectral response accelerations for 1-second periods, S_{MS}	1.02
Design spectral response acceleration at short periods, S_{DS}	1.23
Design spectral response acceleration at 1-second periods, S_{D1}	0.68
Long period transition-period, T_L	8 sec

4.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the final grading and foundation plans and specifications prior to construction to determine whether our recommendations have been implemented, and to provide additional or modified recommendations, if necessary. This also allows us to check if any changes have occurred in the nature, design or location of the proposed improvements and provides the opportunity to prepare a written response with updated recommendations.

2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. All earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fills has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is essential.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

5.0 SLOPE SETBACK RECOMMENDATIONS

Based on the stability analysis, the following setbacks are recommended:

- 3:1 (horizontal:vertical) line of projection from the toe of the creek bank to the top of the bank plus an additional horizontal distance of 15 feet for habitable structures.
- 2.5:1 line of projection from the toe of the creek bank to the top of the bank for non-habitable improvements, including the proposed Lynn Drive if no reinforcement is used.
- 2:1 line of projection from the toe of the creek bank to the top of the bank for non-habitable improvements, including the proposed Lynn Drive if two layers of Tensar Ux1400HS or approved equivalent geogrid reinforcement is placed as indicated in Figure 6. Fifteen foot long strips of Geogrid should be placed at depths of 4 feet and 5 feet below the ground surface centered at the ground projection as shown on Figure 6. The reinforcement should be placed such that the strength of the geogrid is gained perpendicular to the centerline of the creek.

The purpose of these setbacks is to address potential for instability and erosion of the creek banks. It is anticipated that surficial failures may adversely impact the area within the recommended setback zone. Maintenance and/or repair of the trail may be necessary over the long term.

5.1 BIORENTENTION AREA

As previously stated, a bioretention area is proposed between Lynn Drive and the top of the creek bank. Infiltration of water could adversely affect the stability of the creek bank. An impermeable membrane should underlay the bioretention area to limit water infiltration into the underlying soils.

6.0 EARTHWORK RECOMMENDATIONS

The relative compaction and optimum moisture content of soil and aggregate base referred to in this report are based on the most recent ASTM D1557 test method. Compacted soil is not acceptable if it is unstable. It should exhibit only minimal *flexing* or *pumping,* as determined by an ENGEO representative.

As used in this report, the term "moisture condition" refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

We define "structural areas" in Section 4 of this report as any area sensitive to settlement of compacted soil. These areas include, but are not limited to building pads, sidewalks, pavement areas, and retaining walls.

6.1 EXISTING FILL REMOVAL

Remove all existing fill to competent native soil, as determined by ENGEO. As previously discussed, existing fill is anticipated in the immediate vicinity of the previous location of the residential structure. Fill is estimated to be generally less than 3 feet in thickness, except in the pool, leach field, and well improvements locations where the fill may be deeper.

6.2 GENERAL SITE CLEARING

Site development should commence with the removal of existing underground structures, such as buried utilities and their backfill, septic tanks, irrigation lines, and water well system if any exist, and removal of vegetation and debris, loose or compressible soils and any other deleterious materials. As previously discussed, foundations and the swimming pool associated with the previous location of the residential location were present during our field exploration. All previous material associated with the previous residence should be removed.

Tree roots should be removed to a depth of at least three feet below pad grades. Topsoil is estimated to be from two to four inches in thickness depending on location. The organically contaminated materials should not be used in proposed building pad or pavement areas. Subject to approval by th Landscape Architect, strippings and organically contaminated soils can be used in landscape areas. Otherwise, such soils should be removed from the project site. Any topsoil that will be retained for future use in landscape areas should be stockpiled in areas where it will not interfere with grading operations.

A representative of ENGEO should determine the actual removal depth in the field based on conditions encountered during the site grading. Excavations resulting from demolition and stripping below design grades should be cleaned to a firm undisturbed, non-yielding soil surface as determined by the Geotechnical Engineer. Following clearing and grubbing, the exposed subgrade soils should be scarified, moisture-conditioned and backfilled the depressions with compacted engineered fill. The requirements for backfill materials and placement procedures are the same as those for engineered fill as described in the "Fill Placement" section.

6.3 SURFICIAL SOIL REMOVAL

Based on the soil data, loose and compressible materials in the southwest portion of the project site, approximately in the upper three to five feet, were observed in the adjacent sites. It is our anticipation that similar loose and compressible soil may be encountered in some areas of the project site.

We recommend building envelopes (including areas five feet beyond the building perimeters) and driveway pavement areas be re-worked to provide a minimum of two feet of engineered fill beneath improvements. This can be accomplished by overexcavating a minimum depth of one foot below existing grades to expose firm non-yielding soil. The upper 12 inches of the exposed excavation should be scarified and recompacted. Then, grades should be restored with engineered fill followed by placement of any additional fill to achieve finished pad grades per

specifications presented in the later section. Additionally, the areas of the pool and leach field should be overexcavated and backfilled with engineered fill. The subexcavation should be designed to limit differential fills beneath the building footprints to less than 5 feet.

The Geotechnical Engineer or qualified representative should determine the material removal depth in the field at the time of grading. Evaluation of unsuitable deposits should be performed during grading and may include sampling and laboratory analyses.

After the site has been properly cleared and stripped, and necessary excavations have been made, scarify the surface at least 12 inches, moisture condition, and compact in accordance with the recommendations presented below in the "Fill Placement" section, prior to replacing and recompacting overlying soils as engineered fill.

6.4 ACCEPTABLE FILL

Onsite soil material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 8 inches in maximum dimension.

Imported fill materials should meet the above requirements and have a plasticity index less than 12 and at least 20 percent passing the No. 200 sieve. Allow ENGEO to sample and test proposed imported fill materials at least 72 hours prior to delivery to the site.

6.5 FILL COMPACTION

The exposed non-yielding surface to receive fill should be scarified to a depth of 12 inches, moisture conditioned, and recompated to provide adequate bonding with the initial lift of fill. All fills should be placed in thin lifts. The lift thickness should not exceed 12 inches or the depth of penetration of the compaction equipment used, whichever is less.

The following compaction control requirements are generally applied to all fills:

Required Moisture Content:	Not less than 3 percentage points above optimum moisture content.
Minimum Relative Compaction:	Not less than 90 percent.

Since the compaction of expansive soils even up to 90 percent of the maximum dry unit weight may produce an undesirable environment for expansion in the zone of significant seasonal variation, special requirements for compaction of expansive soils are necessary within the upper layer of subgrade soil in building areas. For this condition, it is important to compact the soils such that their swell potential is reduced to acceptable values. The following specifications for compaction of potentially expansive soils within the building pad areas in the upper 3 feet for the fill lots and cut/fill transition lots, and the upper one foot for cut lots, are proposed:

Required Moisture Content:	Not less than 4 percentage points above optimum moisture content.
Minimum Relative Compaction:	Not less than 87 percent and not more than 92 percent. Not less than 90 percent for the upper 6 inches of finish pavement subgrade.

Compact the pavement Caltrans Class 2 Aggregate Base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction.

6.5.1 Underground Utility Backfill

6.5.1.1 General

The contractor is responsible for conducting all trenching and shoring in accordance with CALOSHA requirements. Project consultants involved in utility design should specify pipe bedding materials.

6.5.1.2 Structural Areas

Place and compact trench backfill as follows:

1. Trench backfill should have a maximum particle size of 6 inches.

2. Moisture condition trench backfill to 2 to 4 percent above the optimum moisture content. Moisture condition backfill outside the trench.

3. Place fill in loose lifts not exceeding 12 inches.

4. Compact fill to between 87 and 92 percent relative compaction (90 percent minimum relative compaction at depths of 3 feet or more below finish grades).

Where utility trenches cross underneath buildings, we recommend that a plug be placed within the trench backfill to help prevent the normally granular bedding materials from acting as a conduit for water to enter beneath the building. The plug should be constructed using a sand cement slurry (minimum 28-day compressive strength of 500 psi) or relatively impermeable native soil for pipe bedding and backfill. We recommend that the plug extend for a distance of at least 3 feet in each direction from the point where the utility enters the building perimeter.

Jetting of backfill is not an acceptable means of compaction. We may allow thicker loose lift thicknesses based on acceptable density test results, where increased effort is applied to rocky fill, or for the first lift of fill over pipe bedding.

6.5.2 Landscape Fill

Process, place and compact fill in accordance with Section 6.5 Fill Compaction, except compact to at least 85 percent relative compaction (ASTM D1557).

6.6 SLOPES

6.6.1 Gradients

Construct final slope gradients to 2:1 (horizontal:vertical) or flatter. The contractor is responsible to construct temporary construction slopes in accordance with CALOSHA requirements.

6.7 SITE DRAINAGE

6.7.1 Surface Drainage

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we provide the following minimum recommendation for surface drainage.

1. Slope pavement areas a minimum of 1 percent towards drop inlets or other surface drainage devices.

2. Slope finished grade away from building exteriors at a minimum of 3 percent for a distance of at least 7 feet.

3. Discharge roof down spouts into closed conduits and direct away from buildings to appropriate drainage devices.

6.7.2 Subsurface Drainage

Based on our site exploration and current grading concepts for the site, we do not anticipate that subdrainage systems will be necessary. We recommend that we review the site grading plans to further evaluate the need for subdrainage systems as well as observe the earthwork operations during site grading.

6.8 LANDSCAPING CONSIDERATIONS

As the near surface soils are low to moderately expansive, we recommend greatly restricting the amount of surface water infiltration near structures, pavements, flatwork, and slabs-on-grade. This may be accomplished by:

- Selecting landscaping that requires little or no watering, especially within 3 feet of structures, slabs-on-grade, or pavements,

- Using low precipitation sprinkler heads,
- Regulating the amount of water distributed to lawn or planter areas by installing timers on the sprinkler system,
- Providing surface grades to drain rainfall or landscape watering to appropriate collection systems and away from structures, slabs-on-grade, or pavements,
- Preventing water from draining toward or ponding near building foundations, slabs-on-grade, or pavements, and
- Avoiding open planting areas within 3 feet of the building perimeter.

We recommend that these items be incorporated into the landscaping plans.

7.0 FOUNDATION RECOMMENDATIONS

We developed structural improvement recommendations using data obtained from our field exploration, laboratory test results, and engineering analysis.

7.1 POST-TENSIONED MAT FOUNDATIONS

We recommend that the proposed single-family structures be supported on post-tensioned (PT) mat foundations bearing on prepared natural soil or compacted fill.

We recommend that PT mats be at least 10 inches thick and have a thickened edge at least 2 inches greater than the mat thickness. The thickened edge should be at least 12 inches wide.

Design PT mats for an average allowable bearing pressure of 1,000 pounds per square foot (psf) for dead plus live loads, with maximum localized bearing pressures of 1,500 psf at column or wall loads. Allowable bearing pressures can be increased by one-third for all loads including wind or seismic. Design PT mats using the criteria presented in Table 7.1-1 below.

TABLE 7.1-1
Post-Tension Design Criteria

Condition	Center Lift	Edge Lift
Edge Moisture Variation Distance, e_m (ft.)	7.7	4.0
Differential Soil Movement, y_m (in.)	1.2	1.7

The above design criteria are based on the procedure presented by the Post-Tensioning Institute "Design of Post-Tensioned Slabs-on-Ground" Third Edition, including appropriate addenda (2004).

Underlay PT mats with a moisture reduction system as recommended below. In addition, moisture condition the pad subgrade to a moisture content at least 4 percentage points above optimum prior to foundation construction. The subgrade should not be allowed to dry prior to concrete placement. We also recommend that we be retained to observe the prepour moisture conditions to check that our report recommendations have been followed.

7.1.1 Subgrade Treatment

The subgrade material under structural mats should be uniform. The pad subgrade should be moisture conditioned to a moisture content of at least 3 percentage points above optimum. The subgrade should be thoroughly soaked prior to placing the concrete. The subgrade should not be allowed to dry prior to concrete placement.

7.1.2 Slab Moisture Vapor Reduction

When buildings are constructed with concrete slab-on-grade, such as post-tensioned mats, water vapor from beneath the slab will migrate through the slab and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building. When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the slab-on-grade.

1. Install a vapor retarder membrane directly beneath the slab. Seal the vapor retarder at all seams and pipe penetrations. Vapor retarders shall conform to Class A vapor retarder per ASTM E 1745-97 "Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs".

2. Concrete shall have a concrete water-cement ratio of no more than 0.50.

3. Provide inspection and testing during concrete placement to check that the proper concrete and water cement ratio are used.

4. Moist cure slabs for a minimum of 3 days or use other equivalent curing specific by the structural engineer.

The structural engineer should be consulted as to the use of a layer of clean sand or pea gravel (less than 5 percent passing the U.S. Standard No. 200 Sieve) placed on top of the vapor retarder membrane to assist in concrete curing.

7.1.3 Settlement

The estimated range of theoretical seismically induced settlement is discussed in Section 3.4.5. Based on our analysis, foundations should be designed to accommodate ¾ inch of seismically induced differential settlement over a distance of 30 feet.

8.0 SLABS-ON-GRADE

This section provides guidelines for secondary slabs such as walkways, driveways and steps. Secondary slabs-on-grade should be constructed structurally independent of the foundation system. This allows slab movement to occur with a minimum of foundation distress. Where secondary slab-on-grade construction is anticipated, care must be exercised in attaining a near-saturation condition of the subgrade soil before concrete placement.

Secondary slabs-on-grade should be designed specifically for their intended use and loading requirements. Some of the site soils have a high expansion potential; therefore, cracking of conventional slabs should be expected. Slabs-on-grade should be reinforced for control of cracking, and frequent control joints should be provided to control the cracking. Reinforcement should be designed by the structural engineer. In our experience, welded wire mesh may not be sufficient to control slab cracking. As a minimum, secondary slabs-on-grade should be reinforced with steel bars in lieu of wire mesh.

Secondary slabs-on-grade should have a minimum thickness of 4 inches. A 4-inch-thick layer of clean, crushed rock or gravel should be placed under slabs. Exterior slabs should be constructed with thickened edges extending at least 2 inches beneath the granular material into compacted soil to minimize water infiltration. Slabs should slope away from the buildings to prevent water from flowing toward the building.

8.1 PRELIMINARY PAVEMENT DESIGN

Based on the soil boring data, a Resistance Value (R-Value) of 5 has been assumed in the preliminary pavement design. The following preliminary pavement sections have been determined for Traffic Indices of 5, 6 and 7, and an assumed R-value of 5, and in accordance to the design methods contained in Topic 608 of Caltrans Highway Design Manual.

TABLE 8.1-1
Recommended Asphalt Concrete Pavement Sections

Traffic Index	Section	
	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
5	3.0	10.0
6	3.5	12.5
7	4.0	16.0

The Traffic Index should be determined by the Civil Engineer or appropriate public agency. These sections are for estimating purposes only. Actual sections to be used should be based on R-value tests performed on samples of actual subgrade materials recovered at the time of grading. Pavement construction and all materials should comply with the requirements of the Standard Specifications of the State of California Department of Transportation, Civil Engineer and the City of Pleasanton and the following minimum requirements.

- All pavement subgrades should be scarified to a depth of 12 inches below finished subgrade elevation, moisture conditioned to 4 percentage points above optimum, and compacted to at least 90 percent relative compaction and in accordance with the City of Pleasanton requirements.

- Subgrade soils should be in a stable, non-pumping condition at the time aggregate baserock materials are placed and compacted.

- Adequate provisions must be made such that the subgrade soils and aggregate baserock materials are not allowed to become saturated.

- Aggregate baserock materials should meet current Caltrans specifications for Class 2 aggregate baserock and should be compacted to at least 95 percent of maximum dry density at a minimum moisture content of at least optimum.

- Asphalt paving materials should meet current Caltrans specifications for asphalt co crete.

- All concrete curbs separating pavement and irrigated landscaped areas should extend into the subgrade and below the bottom of adjacent aggregate baserock materials.

8.2 CUT-OFF CURBS

Saturated pavement subgrade or aggregate base can cause premature failure or increased maintenance of asphalt concrete pavements. This condition often occurs where landscape areas directly abut and drain toward pavements. If desired to install pavement cutoff barriers, they should be considered where pavement areas lie downslope of any landscape areas that are to be sprinklered or irrigated, and should extend to a depth of at least 4 inches below the base rock layer. Cutoff barriers may consist of deepened concrete curbs or deep-root moisture barriers.

If reduced pavement life and greater than normal pavement maintenance are acceptable to the owner, then the cutoff barrier may be eliminated.

8.3 RESIDENTIAL DRIVEWAYS/GARAGE SLABS

We were not retained to provide design recommendations for residential driveways or garage slabs. They should be designed to resist the anticipated traffic and structural loads, (and the effects of expansive soil movement.

9.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.3 for the Roselyn Estates II Property project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of

the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data is representative of the actual subsurface conditions across the site. Considering possible underground variability of soil, rock, stockpiled material, and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, notify ENGEO immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, then notify the proper regulatory officials immediately.

This document must not be subject to unauthorized reuse that is, reusing without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time.

Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's documents. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.
We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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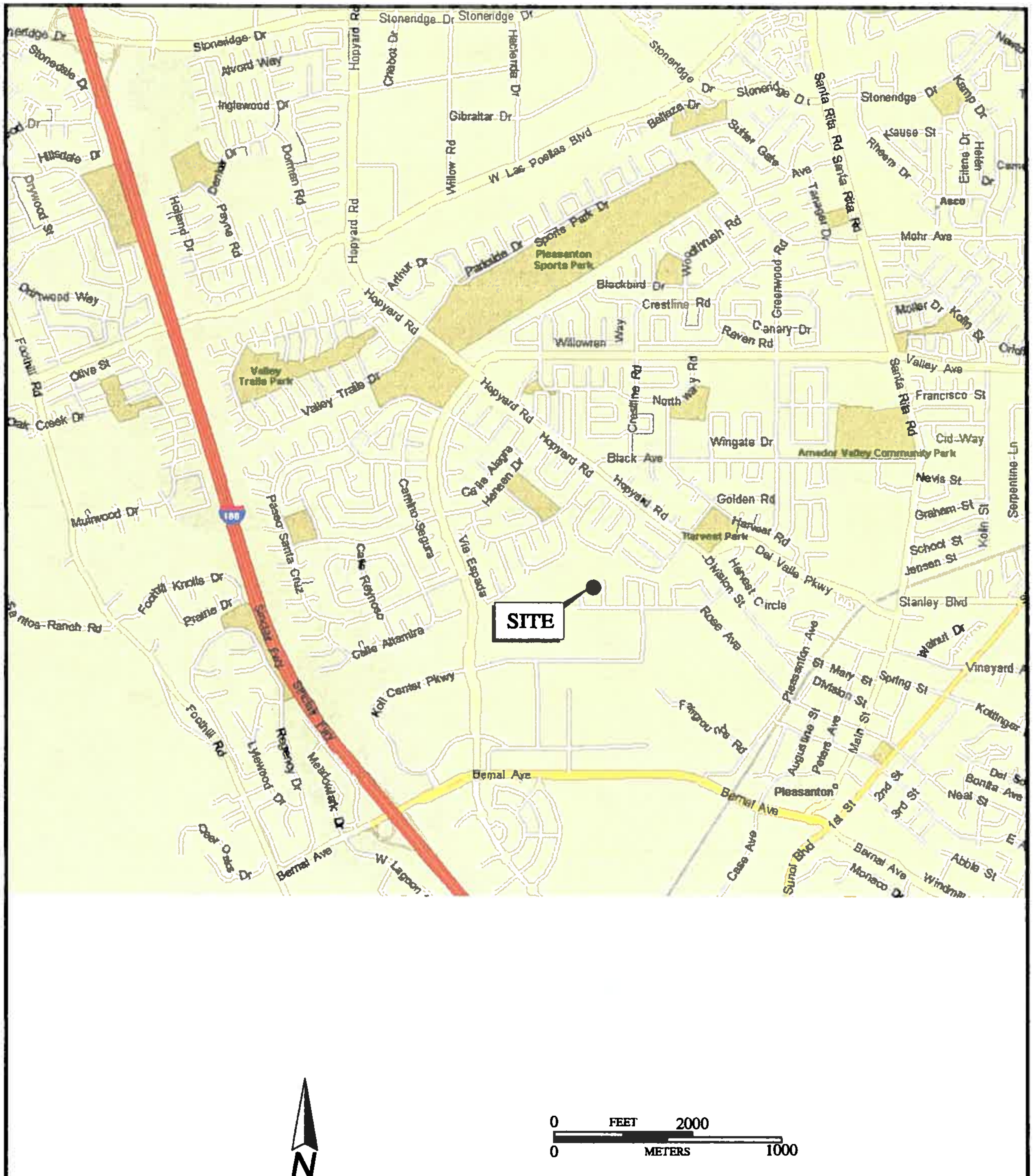
FIGURES

F I G U R E S



BASE MAP SOURCE: MS STREETS AND TRIPS

ENGEO Expect Excellence	VICINITY MAP ROSELYN ESTATES II PROPERTY PLEASANTON, CALIFORNIA	PROJECT NO.: 4425.000.000 SCALE: AS SHOWN DRAWN BY: SRP CHECKED BY: DEB	FIGURE NO. 1

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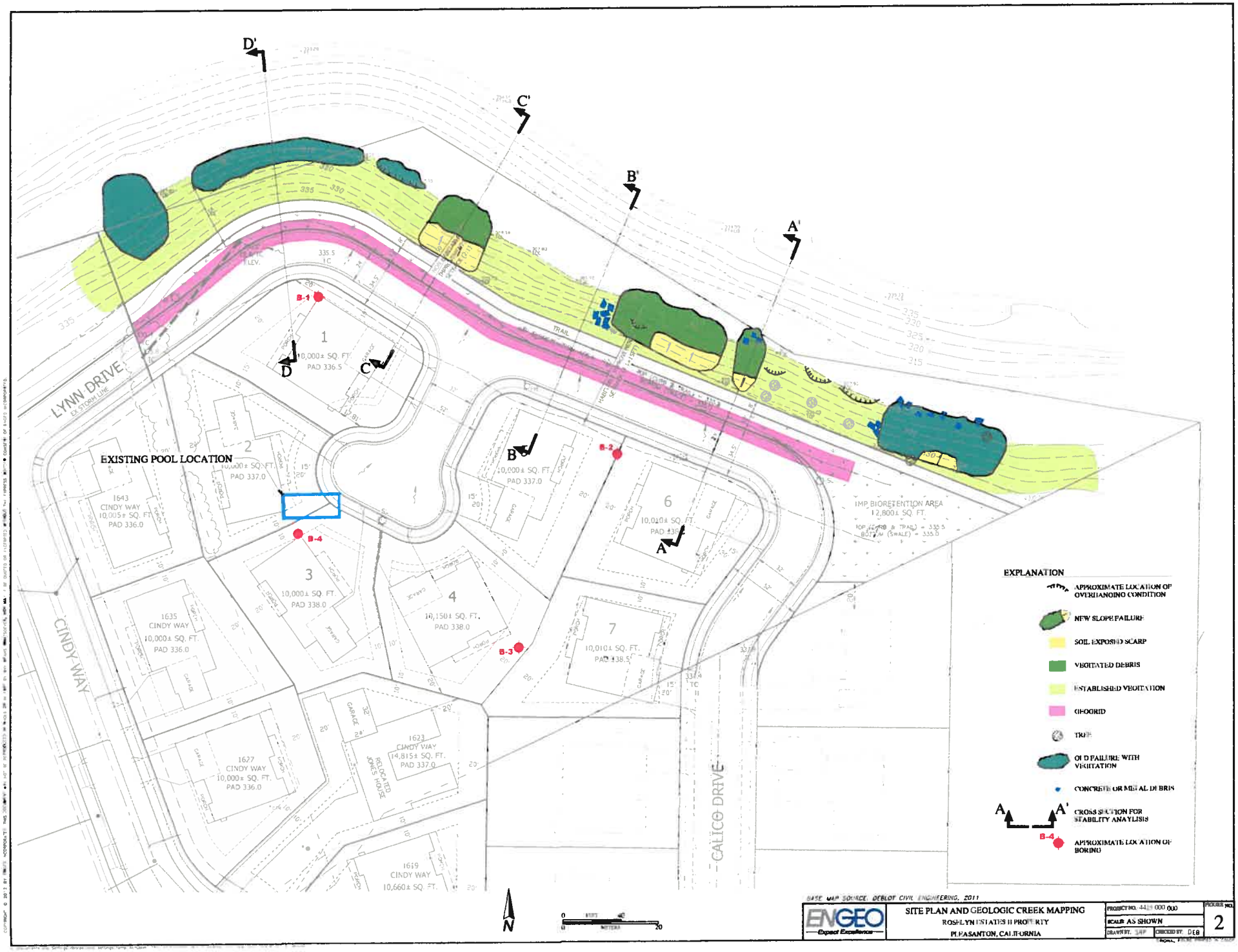
ORIGINAL FIGURE PRINTED IN COLOR



BASE MAP SOURCE: DEBLOT CIVIL ENGINEERING, 2011

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SITE PLAN AND GEOLOGIC CREEK MAPPING
ROSELYN ESTATES II PROPERTY
PLEASANTON, CALIFORNIA

PROJECT NO. 4419 000 000 | FIGURE NO. 2
SCALE AS SHOWN
DRAWN BY: SHP | CHECKED BY: DEB

EXPLANATION

BEDROCK CONTACT-DASHED WHERE GRADATIONAL OR APPROXIMATELY LOCATED

FAULT-DASHED WHERE INFERRED, DOTTED WHERE CONCEALED, QUERIED WHERE EXISTENCE IS DOUBTFUL

STRIKE AND DIP OF STRATA

INCLINED VERTICAL OVERTURNED

Qg	ALLUVIAL GRAVEL
Qa	ALLUVIAL SAND AND GRAVEL
QTlg	LIVERMORE GRAVEL
Kp	CLAY SHALE (PANOCHE FORMATION)
Kps	SANDSTONE (PANOCHE FORMATION)
Kpc	CONGLOMERATE (PANOCHE FORMATION)

BASE MAP SOURCE: DIBBLEE, 2005

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REGIONAL GEOLOGIC MAP

ROSELYN ESTATES II PROPERTY

PLEASANTON, CALIFORNIA

PROJECT NO.: 4425.000.000

SCALE: AS SHOWN

DRAWN BY: SRP CHECKED BY: DEB

FIGURE NO. 3

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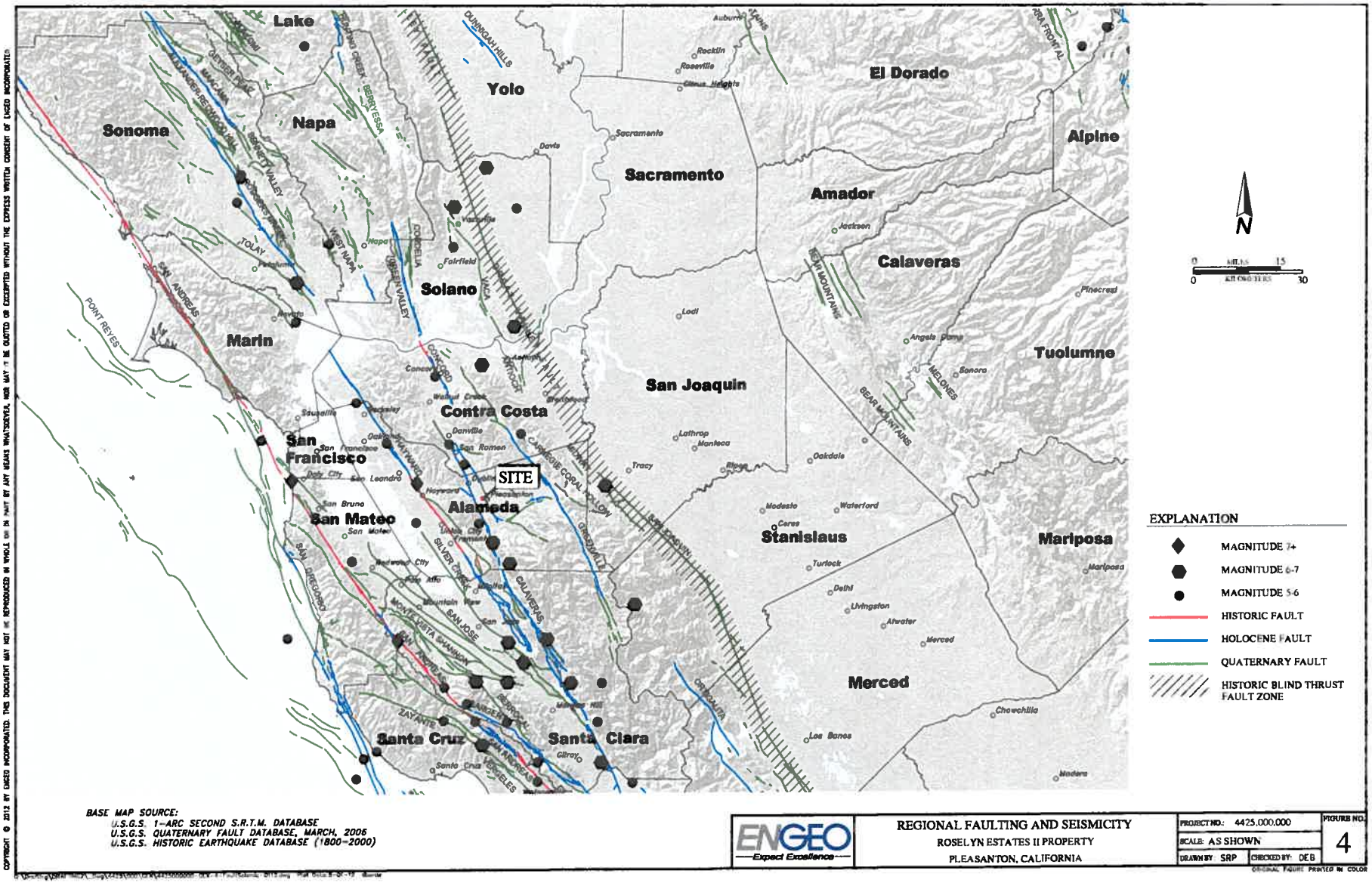

BASE MAP SOURCE:
U.S.G.S. 1-ARC SECOND S.R.T.M. DATABASE
U.S.G.S. QUATERNARY FAULT DATABASE, MARCH, 2006
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-2000)

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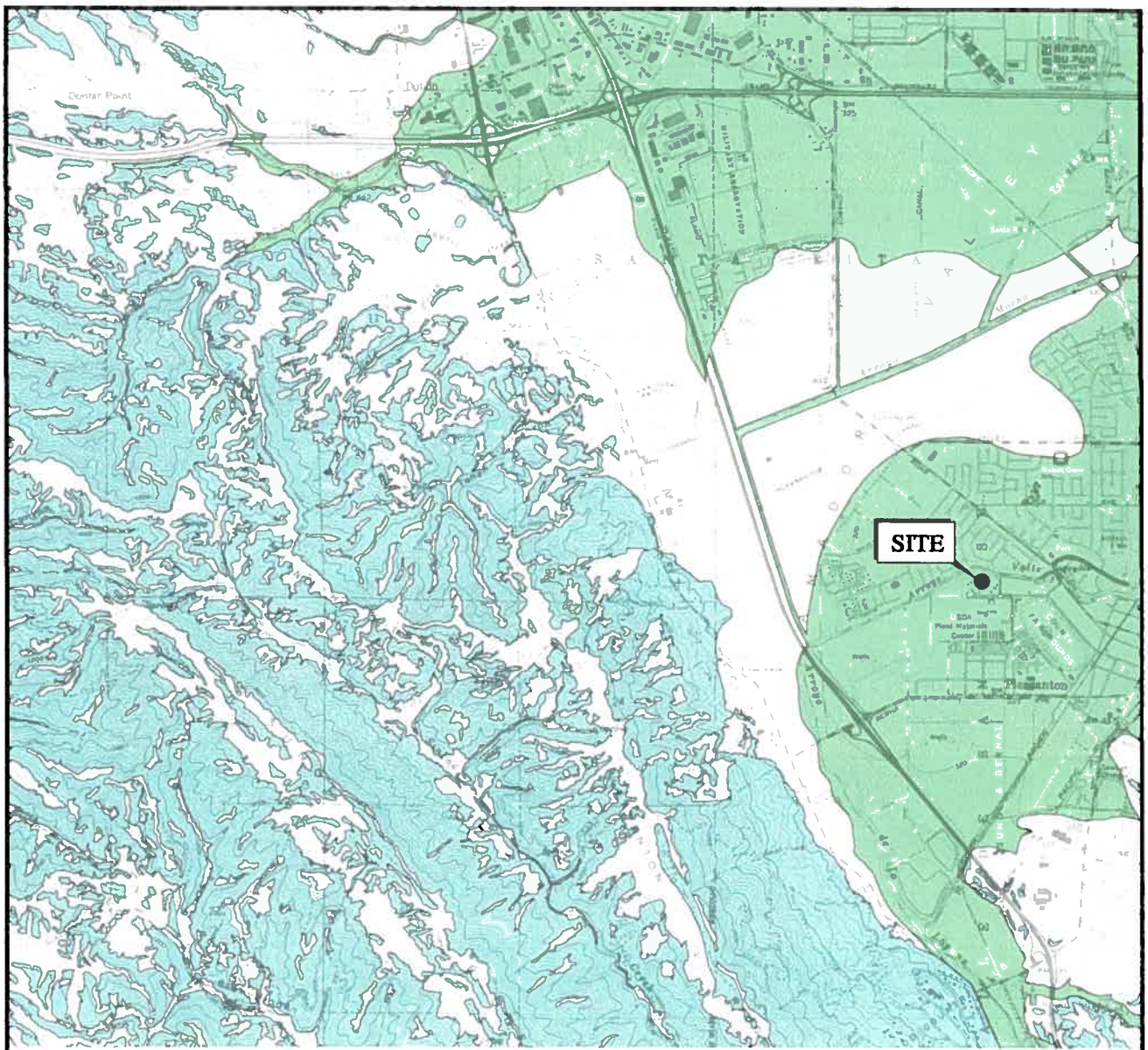
REGIONAL FAULTING AND SEISMICITY
ROSELYN ESTATES II PROPERTY
PLEASANTON, CALIFORNIA

PROJECT NO.: 4425.000.000
SCALE: AS SHOWN
DRAWN BY: SRP
CHECKED BY: DEB

FIGURE NO. 4

ORIGINAL FIGURE PRINTED IN COLOR



EXPLANATION

LIQUEFACTION

AREAS WHERE HISTORIC OCCURRENCE OF LIQUEFACTION, OR LOCAL GEOLOGICAL, GEOTECHNICAL AND GROUNDWATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED

EARTHQUAKE-INDUCED LANDSLIDES

AREAS WHERE PREVIOUS OCCURRENCE OF LANDSLIDE MOVEMENT, OR LOCAL TOPOGRAPHIC, GEOLOGICAL, GEOTECHNICAL AND SUBSURFACE WATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED IN PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED

N

0 FEET 4000

0 METERS 2000

BASE MAP SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, CALIFORNIA GEOLOGICAL SURVEY, 2008

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SEISMIC HAZARD ZONE MAP

ROSELYN ESTATES II PROPERTY

PLEASANTON, CALIFORNIA

PROJECT NO.: 4425.000.000		FIGURE NO. 5
SCALE: AS SHOWN		
DRAWN BY: SRP	CHECKED BY: DEB	

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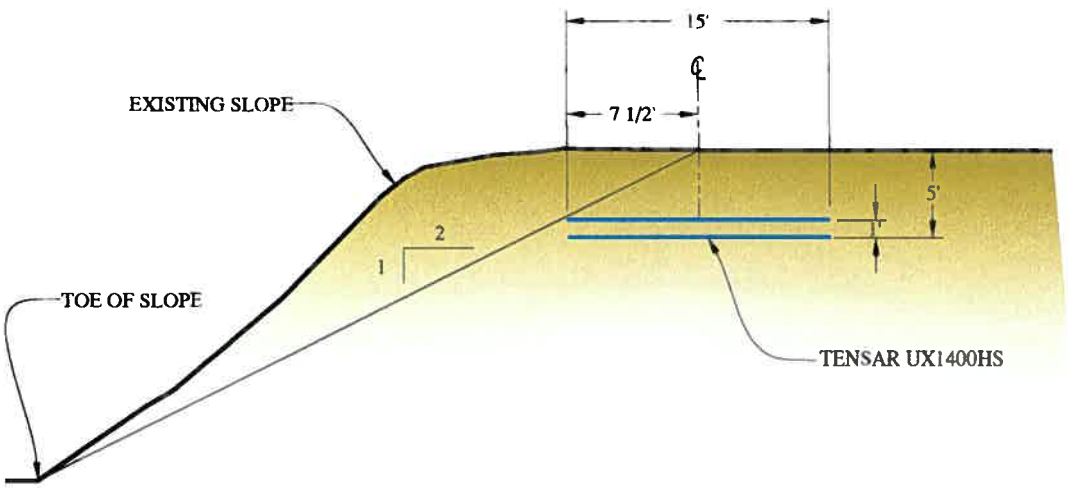
ORIGINAL FIGURE PRINTED IN COLOR



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TYPICAL GEOGRID REINFORCED SECTION

ROSELYN ESTATES II PROPERTY

PLEASANTON, CALIFORNIA

PROJECT NO.: 4425.000.000		FIGURE NO. 6
SCALE: NO SCALE		
DRAWN BY: SRP	CHECKED BY: DEB	

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ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX A

Key to Boring Logs
Exploration Logs

APPENDIX A

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4"	3"	12"	
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING B-1

Jones Propoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/15/2011	Logged/Reviewed By:	J.Botelho/ R.Skinner
Hole Depth (ft)	: 51 1/2 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 336	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6675	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8909	Hole Diameter	: 9 inches

Depth in Feet	Surf. Elev. 336	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
0	336		Surface is tall grass								
			Sandy SILT (ML), yellowish brown, dry to slightly moist, very stiff, few roots, fine-grained sand.			5	5.2	91.0	3.25*		
5	331					13			3.25*		
10	326		Lean CLAY (CL), olive brown, hard, dry to slightly moist, contains silt, fine-grained sand, rootlets, slight porous texture.			22	9.5	98.0	4.5+*		
15	321		Silty Clayey SAND (SC-SM), olive brown, medium dense, moist, increasing amount and size of sand with depth, gravels in shoe.			32				33.9	4
20	316		Lean CLAY (CL), olive brown mottled with yellowish red, hard, moist, dark reddish brown oxidation staining, contains silt, minor gray clay on soil partings.			19	19.9	99.4	4.5+*		
25	311		Lean CLAY (CL), brown mottled with reddish brown, hard, moist, contains fine-grained sand and silt, abundant pores, some with gray clay coatings, orgaincs, dark reddish brown oxidation staining, granular texture.			24			4.5+*		
30											

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LOG OF BORING B-1

Jones Propoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/15/2011	Logged/Reviewed By:	J.Botelho/ R.Skinner
Hole Depth (ft)	: 51 1/2 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 336	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6675	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8909	Hole Diameter	: 9 inches

Depth in Feet	Surf. Elev. 336	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
30	306		Lean CLAY with sand (CL), dark brown mottled with dark yellowish brown, medium stiff, wet (no free water) fine-grained sand, few coarse-grained sand, highly porous with abundant gray clay coatings, granular texture, minor organics.			12	18.8	110.5	0.829	71.2	10
35	301		Silty SAND (SM), yellowish brown, medium dense, wet, fine-grained sand, reddish brown oxidation staining, organics.			5			0.75*	48.3	12
			Sandy CLAY (CL), dark brown, medium stiff, wet, fine-grained sand.								
			Silty SAND (SM) as above			9					
			Sandy CLAY (CL), as above								
40	296		Lean SILT with sand (ML), grayish brown mottled with light gray and olive brown, thin layering, very stiff, moist, fine-grained sand, minor reddish brown oxidation staining.			11			2.75*		
			Lean CLAY to Lean SILT (CL-ML), grayish brown mottled with gray and dark yellowish brown, very stiff, contains organics and dark reddish brown oxidation staining, light porous texture.								
45	291					10	25.0	108.2	4.5*		6
			Lean SILT with sand (ML), brown mottled with dark reddish brown and gray, very stiff, moist, fine-grained sand, light porous texture, organics.								
50	286					13			3.0-3.25*		
			Bottom of boring at approximately 51 1/2 feet. Groundwater encountered at approximately 35 feet.								
55	281										
60											

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LOG OF BORING B-2

Jones Propoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/15/2011	Logged/Reviewed By	: J.Botelho/ R.Skinner
Hole Depth (ft)	: 51 1/2 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 339	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6673	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8902	Hole Diameter	: 9 inches

Depth in Feet	Surf. Elev. 339	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
0	339		Surface is short grass								
			Lean SILT (ML), yellowish brown, hard, dry to slightly moist, contains rootlets and fine-grained sand, porous texture.						4.5+*		
5	334		as above			10	6.3	83.5			
10	329		as above, some mottling with grayish brown, contains organics and carbonate, pores with gray coatings or carbonate.			17					
			Sandy lean CLAY (CL), dark brown mottled with dark yellowish brown, hard, slightly moist, porous, contains rootlets, fine-grained sand.								
15	324		Sandy lean CLAY (CL), light yellowish brown mottled with brown and olive gray, hard, slightly moist, fine-grained sand and some coarse-grained sand, porous, contains roots and rootlets.			27	8.3	110.0	4.5+* 4.5+*		
			Lean SILT (ML), light yellowish brown mottled with pale olive, hard, dry, pores with light clay coatings.								
20	319		Lean CLAY (CL), dark brown mottled with yellowish red, hard, dry to slightly moist, minor pores with dark gray clay coatings, contains silt, rootlets, and reddish yellow oxidation staining.			22			4.5+* 4.5+*	97.9	15
25	314		as above, siltier and lighter color			19			4.5+*		
			Sandy lean CLAY (CL), light yellowish brown mottled with olive gray, hard, slightly moist, fine-grained sand, minor pores, contains clay.								
30											

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LOG OF BORING B-2

Jones Propoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/15/2011	Logged/Reviewed By:	J.Botelho/ R.Skinner
Hole Depth (ft)	: 51 1/2 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 339	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6673	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8902	Hole Diameter	: 9 inches

Depth in Feet	Surf. Elev. 339	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
30	309		as above, dark yellowish brown mottled with yellowish red and gray, very stiff, moist, pores with gray clay coatings, gray along soil partings, dark reddish brown oxidation staining, few rootlets.			13	15.6	115.6	3.25*		12
35	304		CLAY (CL), dark brown mottled with dark yellowish red, medium stiff, wet, pores with gray clay coatings, contains reddish yellow oxidation staining.			10	18.7	108.3	0.687	48.3	9
40	299		as above, contains carbonates, very stiff								
			Sandy lean SILT/Silty SAND (ML-SM), olive brown mottled with gray, stiff/loose, wet, fine-grained sand.			9	22.0		2.25*		1
			SAND (SM), brown, loose, wet, fine-to medium-grained sand.			11					
			Sandy lean SILT (ML), olive brown some gray, medium stiff, wet, fine-grained sand, some interlayering of sandier zones.						0.75*		
45	294		Lean CLAY to Lean SILT (CL-ML), yellowish brown motteld with reddish brown and gray, stiff to very stiff, wet, contains clay and dark reddish brown oxidation staining, granular texture at bottom of sample.			11	34.7	104.3	2.0*		7
50	289		as above, very stiff			18			3.5*		
55	284		Bottom of boring at approximately 51 1/2 feet. Groundwater encountered at approximately 35 feet.								
60											

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LOG OF BORING B-3

Jones PRopoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/16/2011	Logged/Reviewed By	: J.Botelho/ R.Skinner
Hole Depth (ft)	: 23 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 338	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6668	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8904	Hole Diameter	: 6 inches

Depth in Feet	Surf. Elev. 338	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
0	338		Surface is soil, approximately 1 foot below original grade of old driveway.								
			Lean SILT (ML), dark brown mottled with brown, very stiff, slightly moist, fine-grained sand, contains rootlets and carbonate around rootlets, yellowish brown oxidation staining, gravels to 1 1/2 feet (FILL).			7			3.0*		
			Silty SAND (SM), yellowish brown to dark yellowish brown with reddish yellow mottling, very loose to loose, moist, fine- to medium-grained sand some coarse-grained sand, contains roots.								
5	333					6				18.3	
			SAND (SM), grayish brown, loose, dry, medium-to coarse-grained sand.								
			Silty SAND (SM) as above			4					
			Sandy lean SILT (ML), yellowish brown, stiff, slightly moist, fine-grained sand.								
10	328		SAND (SM), grayish brown, loose, slightly moist, medium-to coarse-grained sand, contains silt.			13				3.7	
			Silty SAND with gravel (SM), pale yellow, dense, dry, angular gravel.								
15	323		SAND with gravel and silt (SM), grayish brown, dense, moist, subangular gravel, larger gravel than above.			49					
			Sandy CLAY (CL), dark brown, very stiff, coarse-grained sand, subangular.								
20	318								3.75*		
			SAND (SW), yellowish red, medium dense, moist, medium- to coarse-grained sand, contains silt.			33				10.0	
			Gravelly SAND (SW), brownish gray, medium dense, sry to slightly moist, medium- to coarse-grained sand, subangular gravels, contains silt and yellowish red oxidation staining. Interlayered zones approxiamtely 3 inches to 5 inches of sand and gravel and sand no gravel.			25					
25	313		Bottom of boring at 23 feet. No groundwater encountered.								
30											

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ENGEO
Expect Excellence

LOG OF BORING B-4

Jones PRopoerty (Roslyn Estates II)
Pleasanton, CA
4425.000.000

Date Drilled	: 12/15/2011	Logged/Reviewed By	: J.Botelho/ R.Skinner
Hole Depth (ft)	: 21 1/2 feet	Drilling Contractor	: Britton Exploration
Surface Elev (ft-msl)	: approximately 337	Drilling Method	: Hollow Stem
Latitude (NAD83)	: 37.6671	Hammer Type	: 140lb Auto Hammer
Longitude (NAD83)	: -121.8910	Hole Diameter	: 6 inches

Depth in Feet	Surf. Elev. 337	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count / Foot	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength *field approx	Percent Passing #200 Sieve	Plasticity Index
0	337		Surface is short grass								
			Lean CLAY to Lean SILT (CL-ML), dark yellowish brown mottled with olive brown, very stiff, slightly moist, porous, contains rootlets and fine-grained sand.			8	7.8	84.2	3.5*	71.2	5
5	332		Silty SAND (SM), dark yellowish brown, very loose, moist, fine- to medium-grained sand, porous, contains rootlets and black organics.			5	7.7	87.1	2.75		
			Silty SAND (SM), dark yellowish brown to very loose, moist, fine- to medium-grained sand, contains pores, rootlets, and black organics.								
10	327		SILT with sand (ML), dark brown mottled with dark yellowish brown and some dark gray, hard, moist, fine-grained sand, some coarse-grained sand , porous with dark gray clay coatings, contains black organics.			14			4.5+*		
15	322		Silty SAND (SM), yellowish brown mottled with gray, moist, medium dense, fine- to coarse-grained sand, reddish brown oxidation staining, contains organics and rootlets.			20				21.2	
20	317		Lean CLAY (CL), dark brown mottled with dark yellowish brown and dark olive gray, stiff to very stiff, moist to wet (some free water at top of sample), gray clay stringers, black oxidation staining and organics.			17			1.5-2.25*		
			Bottom of boring at approximately 21 1/2 feet. Perched groundwater encountered at approximately 20 feet.								
25	312										
30											

02-03-2012 G:\Active Projects\4425\4425000000\GEX\Boring Logs\B-4.bor

APPENDIX B
LABORATORY TEST DATA

Summary of Laboratory Results
Liquid and Plastic Limits Test Report (2 pages)
Unconfined Compression Test
Particle Size Distribution Report (9 pages)
Sulfate Test Report

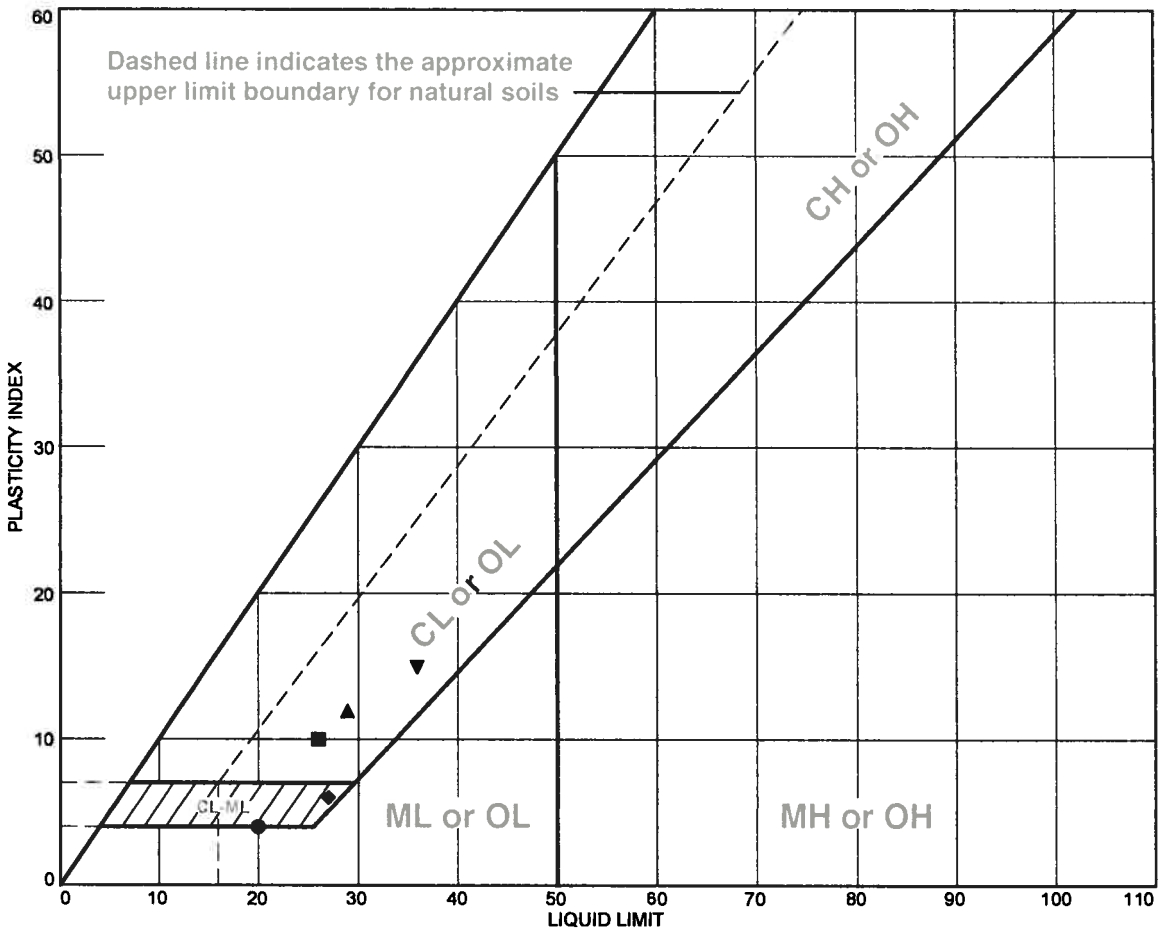
APPENDIX B

Summary of Laboratory Testing

Boring Number	Depth Feet	In-Place		Atterberg Limits			Unconfined Compressive Strength tsf	Gradation (Percent Passing No. 200 Sieve)	Sulfate (% by weight)
		Dry Unit Weight Pcf	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index			
B-1	2	91.0	5.2						
B-1	11	98.0	9.5						
B-1	16			20	16	4		33.9	
B-1	21	99.4	19.9						
B-1	31	110.5	18.84	26	16	10	0.829	71.2	
B-1	35							48.3	
B-1	36			29	17	12			
B-1	45.5			27	21	6			
B-1	46	108.2	25.0						
B-2	6	83.5	6.3						
B-2	16	110.0	8.3						
B-2	21			36	21	15		97.9	
B-2	31	115.6	15.6	26	14	12			
B-2	36	108.3	18.73	27	18	9	0.687		
B-2	41		22.0	21	20	1			
B-2	46	104.3	34.7	26	19	7			
B-3	6							18.3	
B-3	11							3.7	
B-3	21.5							10.0	
B-4	2	84.2	7.8	25	20	5		71.2	0.002
B-4	6	87.1	7.7						
B-4	16							21.2	

4425.000.000
February 3, 2012

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs.	20	16	4	58.9	33.9	SC-SM
■	See exploration logs.	26	16	10	97.5	71.2	CL
▲	See exploration logs.	29	17	12			CL
◆	See exploration logs.	27	21	6			CL-ML
▼	See exploration logs.	36	21	15	100.0	97.9	CL

Project No. 4425.000.000 **Client:** Lynden Homes

Project: Jones Property - Pleasanton, CA

Remarks:

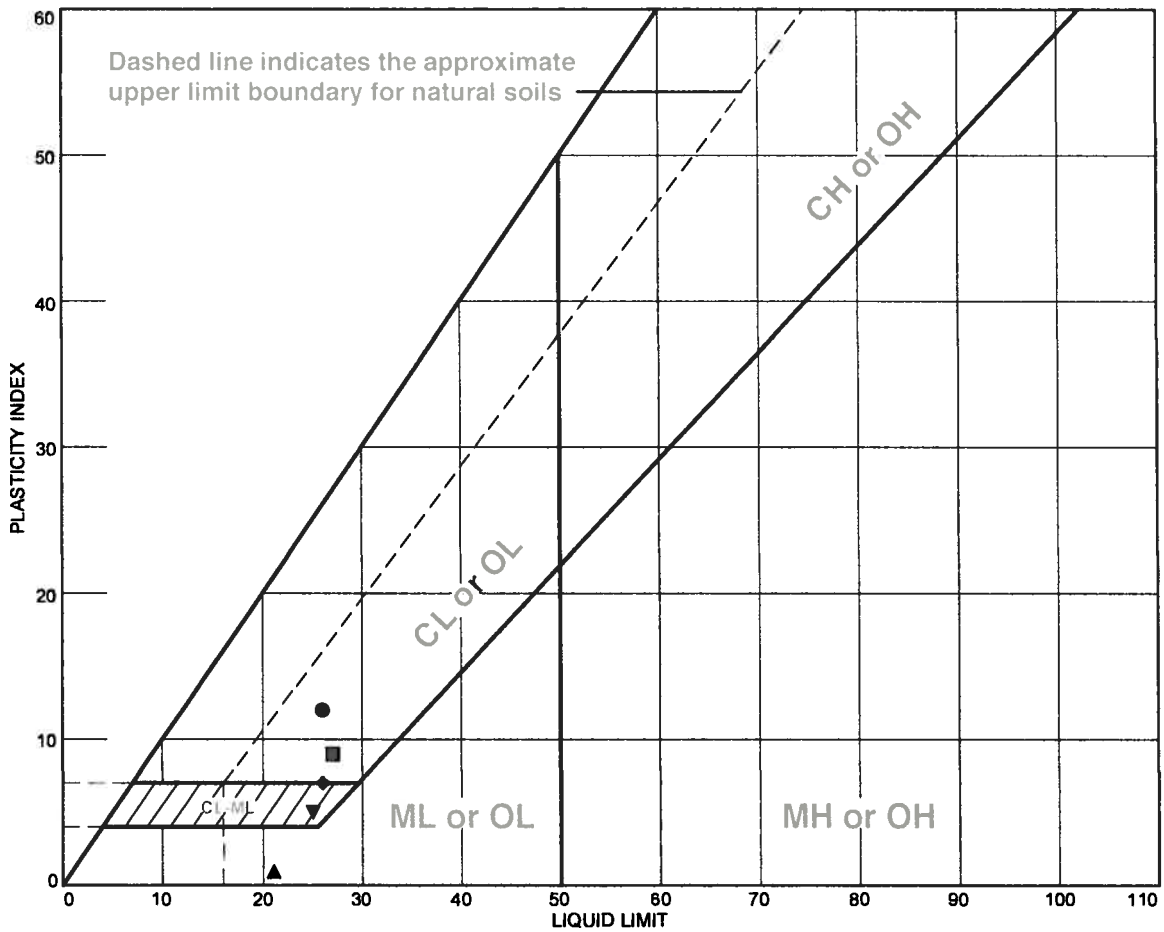
● **Depth:** 16 feet **Sample Number:** B-1 @ 16'
■ **Depth:** 31 feet **Sample Number:** B-1 @ 31'
▲ **Depth:** 36 feet **Sample Number:** B-1 @ 36'
◆ **Depth:** 45.5 feet **Sample Number:** B-1 @ 45.5'
▼ **Depth:** 21 feet **Sample Number:** B-2 @ 21'

ENGEO INCORPORATED

Figure

Tested By: ○ GC □ GC △ GC ◇ GC ▽ NN **Checked By:** DS

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs.	26	14	12			CL
■	See exploration logs.	27	18	9			CL
▲	See exploration logs.	21	20	1			ML-SM
◆	See exploration logs.	26	19	7			CL-ML
▼	See exploration logs.	25	20	5	100.0	71.2	CL-ML

Project No. 4425.000.000 **Client:** Lynden Homes

Project: Jones Property - Pleasanton, CA

Remarks:

● **Depth:** 31 feet **Sample Number:** B-2 @ 31'
■ **Depth:** 36 feet **Sample Number:** B-2 @ 36'
▲ **Depth:** 41 feet **Sample Number:** B-2 @ 41'
◆ **Depth:** 46 feet **Sample Number:** B-2 @ 46'
▼ **Depth:** 2 feet **Sample Number:** B-4 @ 2'

ENGEO INCORPORATED

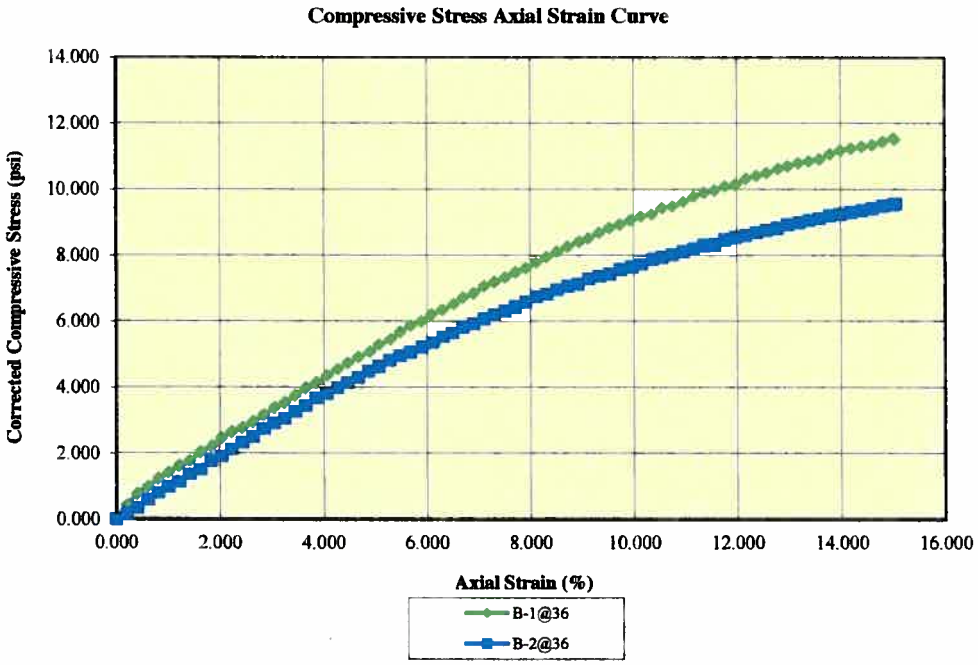
Figure

Tested By: ○ NN △ GC **Checked By:** DS

ENGEO Incorporated

Unconfined Compression Test Report (ASTM D2166)

Date 12/27
Checked By G. Criste
Date 12.27.11
Computed By D. Seibold
Date 12.27.11
Tested By D. Seibold

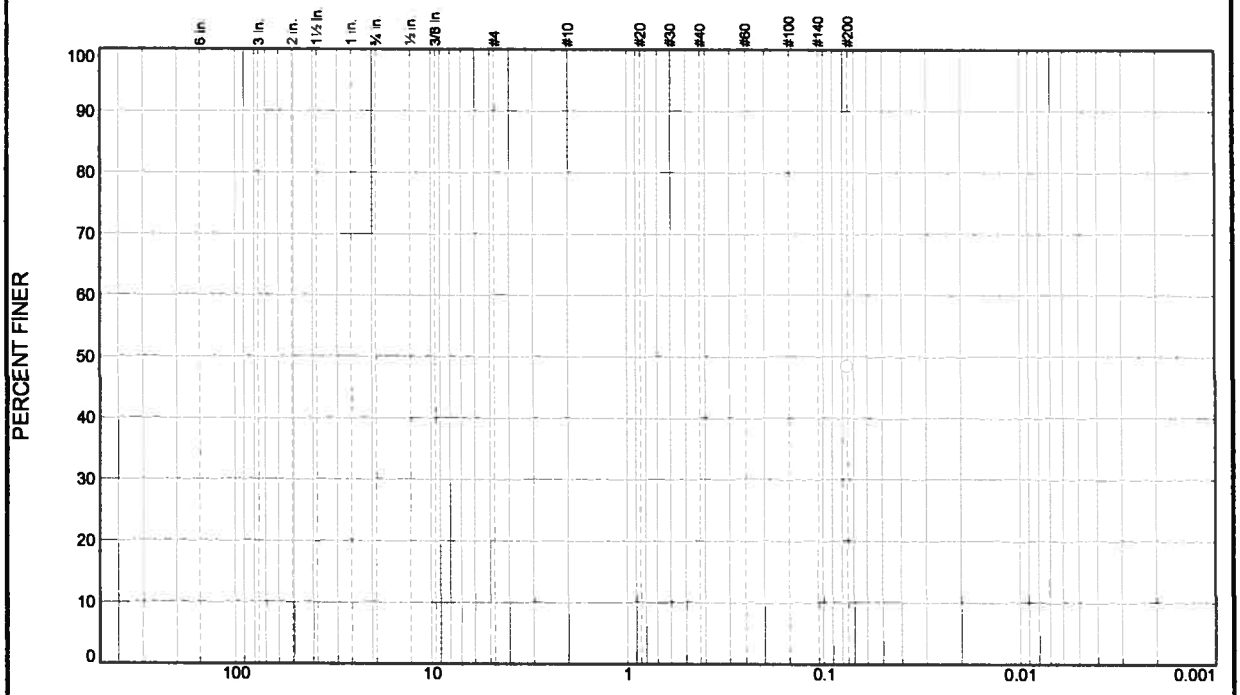


Before Test	Specimen			
	B-1@31	B-2@36		
Water Content (%)	18.84	18.73		
Dry Density (pcf)	110.500	108.300		
Saturation (%)	100.50	94.06		
Void Ratio	0.50	0.53		
Diameter (in)	2.420	2.380		
Height (in)	5.000	5.000		
Test Data	**B-1@31**	**B-2@36**		
Unconfined Compressive Strength (psi)	11.523	9.549		
Unconfined Compressive Strength (tsf)	0.829	0.687		
Undrained Shear Strength (psi)	5.761	4.775		
Rate of Strain (in/min)	0.050000	0.050000		
Strain at Failure (%)	15.02	15.06		
Description				

Project Information		Specimen Description	
Project Num	4425000000	B-1@31	See exploration logs.
Project	Jones Property, Phase 002	B-2@36	See exploration logs.
Sampling Date			
Sample #	Various		
Client	Lynden Homes	Test Variables	
		Specific Gravity	2.65
		Liquid Limit:	
		Plastic Limit:	

Remarks

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							48.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	48.3		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: B-1 @ 35' **Depth:** 35 feet

Date: 12/27/11

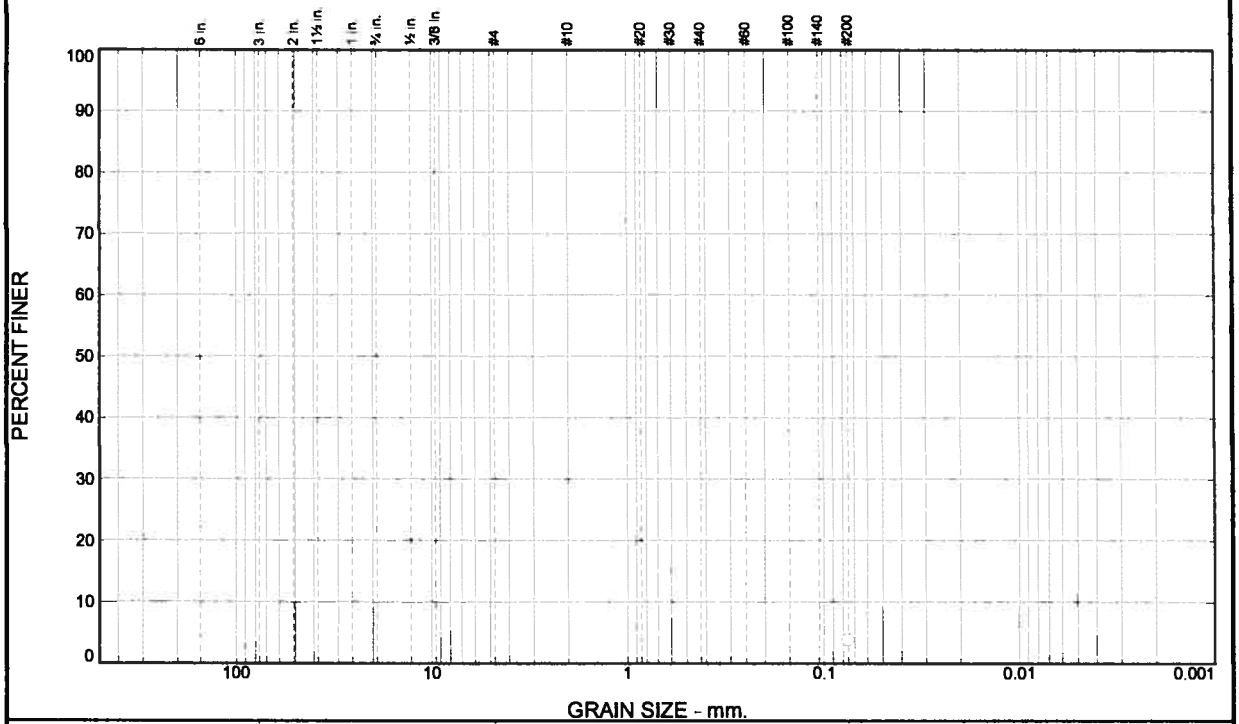
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: TB **Checked By:** GC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							3.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	3.7		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: B-3 @ 11' **Depth:** 11 feet

Date: 12/27/11

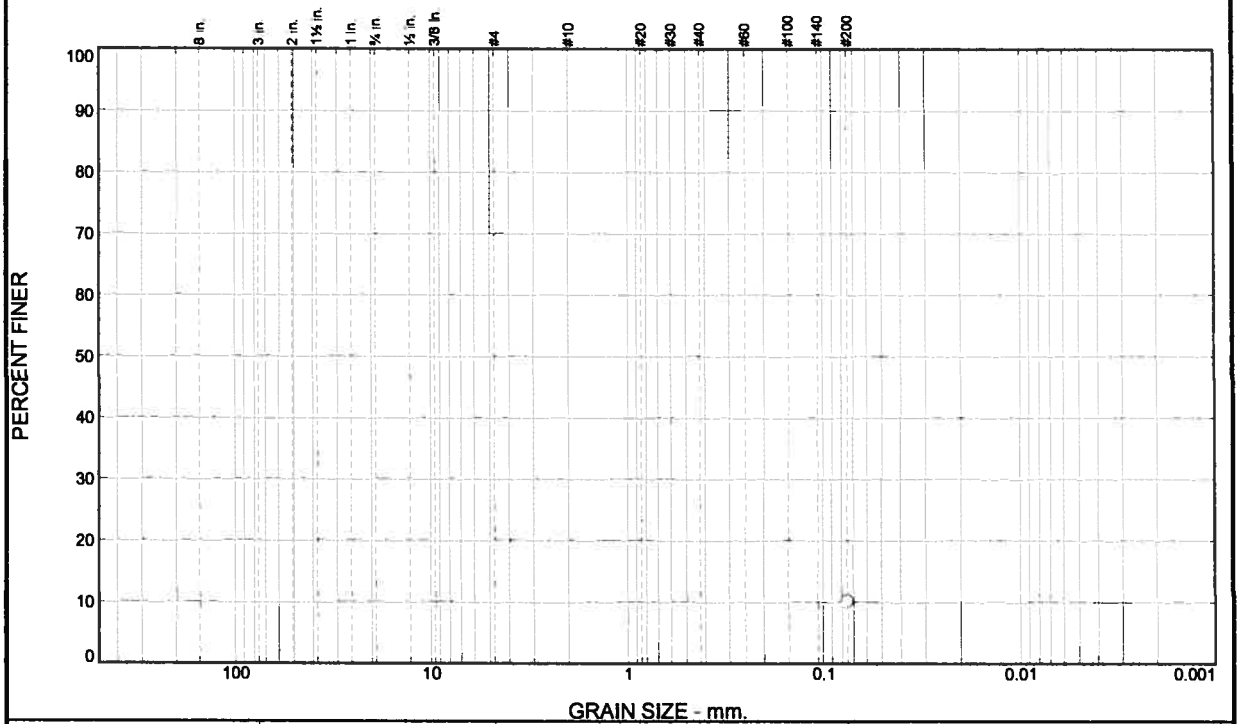
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: TB **Checked By:** DS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							10.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	10.0		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= 0.0750 C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: B-3 @ 21.5' **Depth:** 21.5 feet

Date: 12/27/11

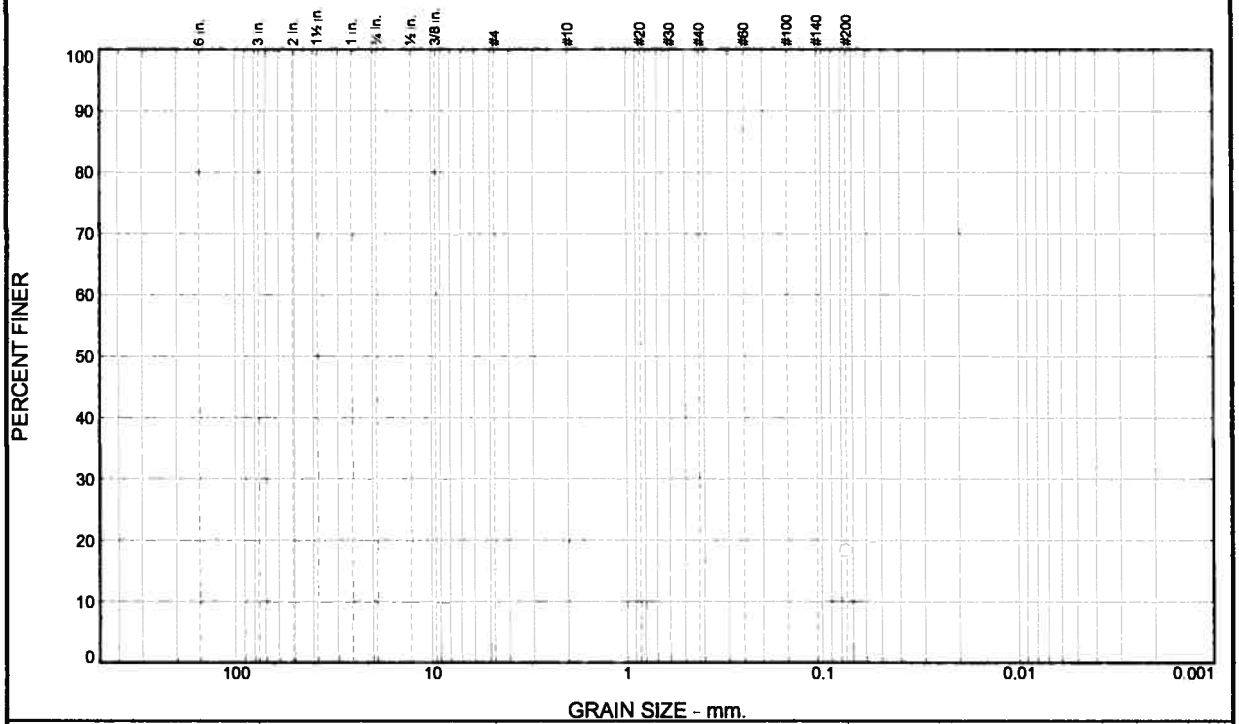
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: TB **Checked By:** GC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							18.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18.3		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: B-3 @ 6' **Depth:** 6 feet

Date: 12/27/11

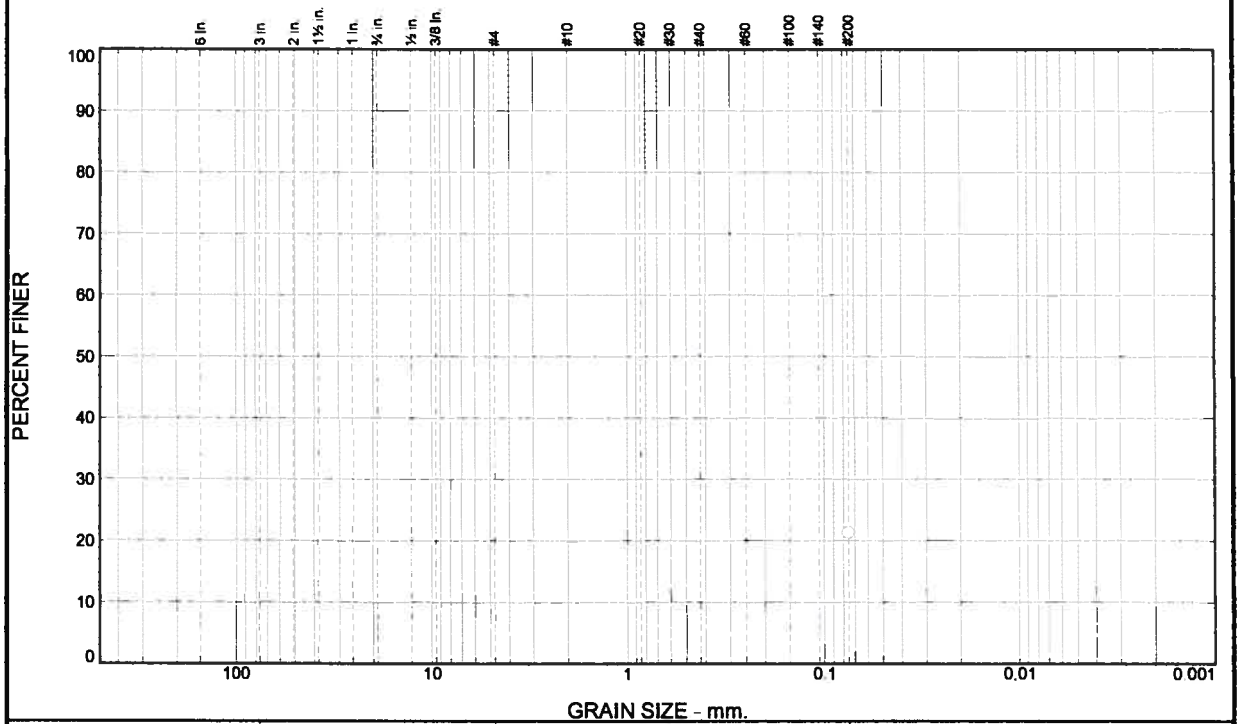
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: TB **Checked By:** GC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
							21.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	21.2		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample Number: B-4 @ 16' **Depth:** 16 feet

Date: 12/27/11

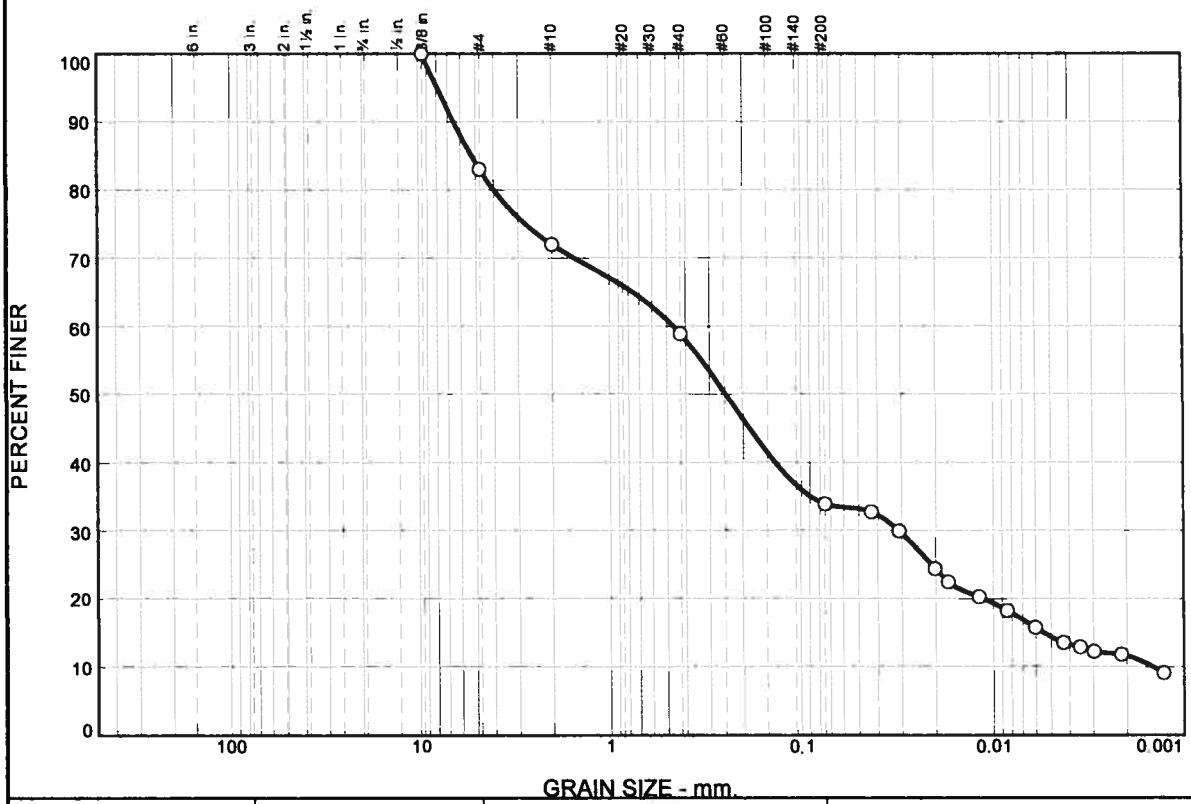
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: TB **Checked By:** GC

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	16.9	11.1	13.1	25.0	19.5	14.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	83.1		
#10	72.0		
#40	58.9		
#200	33.9		
0.0431 mm.	32.8		
0.0309 mm.	30.0		
0.0201 mm.	24.4		
0.0172 mm.	22.5		
0.0119 mm.	20.3		
0.0084 mm.	18.3		
0.0060 mm.	15.8		
0.0043 mm.	13.6		
0.0035 mm.	12.9		
0.0030 mm.	12.3		
0.0021 mm.	11.8		
0.0013 mm.	9.1		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= 16 LL= 20 PI= 4

Coefficients

D_{90}= 6.4859 D_{85}= 5.2234 D_{60}= 0.4634
D_{50}= 0.2467 D_{30}= 0.0310 D_{15}= 0.0054
D_{10}= 0.0015 C_u= 318.03 C_c= 1.42

Classification

USCS= SC-SM AASHTO= A-2-4(0)

Remarks

Specific gravity = 2.879

Sample Number: B-1 @ 16' **Depth:** 16 feet

Date: 12/23/11

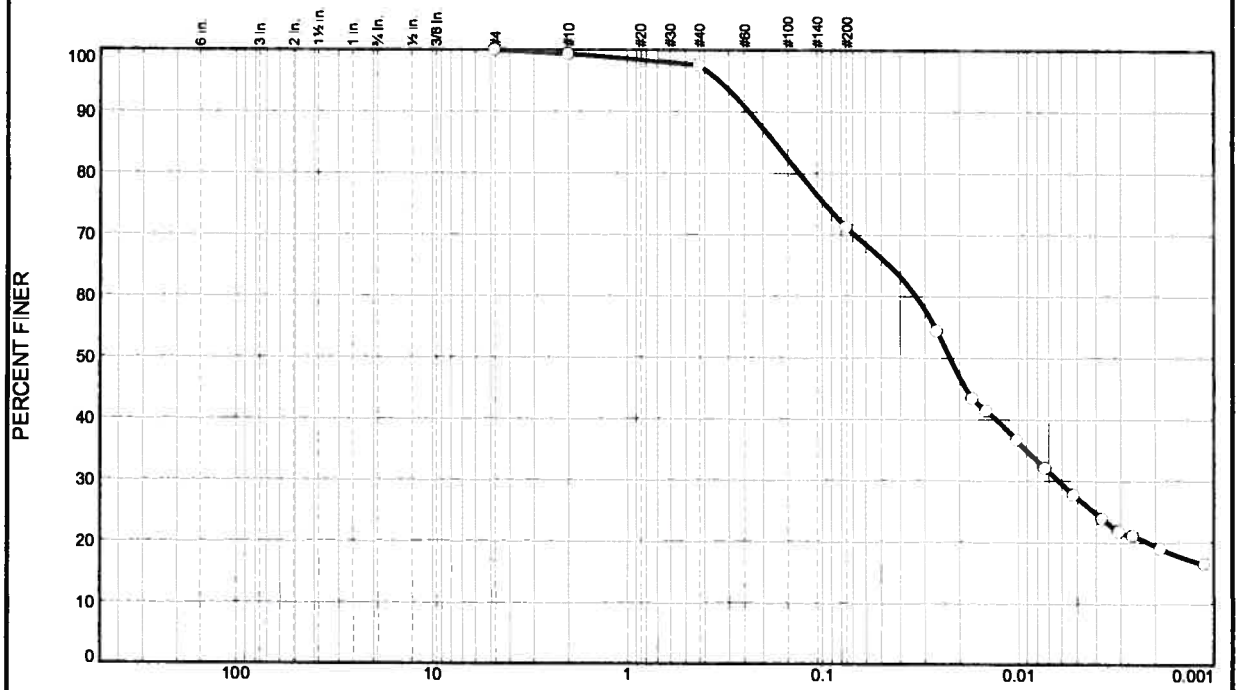
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: GC **Checked By:** DS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	1.8	26.3	44.0	27.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.3		
#40	97.5		
#200	71.2		
0.0260 mm.	54.3		
0.0172 mm.	43.4		
0.0146 mm.	41.4		
0.0101 mm.	36.6		
0.0073 mm.	32.0		
0.0052 mm.	27.7		
0.0037 mm.	23.8		
0.0031 mm.	21.7		
0.0026 mm.	21.0		
0.0019 mm.	19.0		
0.0011 mm.	16.4		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= 16 LL= 26 PI= 10

Coefficients

D_{90}= 0.2356 D_{85}= 0.1747 D_{60}= 0.0333
D_{50}= 0.0224 D_{30}= 0.0063 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-4(5)

Remarks

Specific gravity = 3.461

Sample Number: B-1 @ 31' **Depth:** 31 feet

Date: 12/23/11

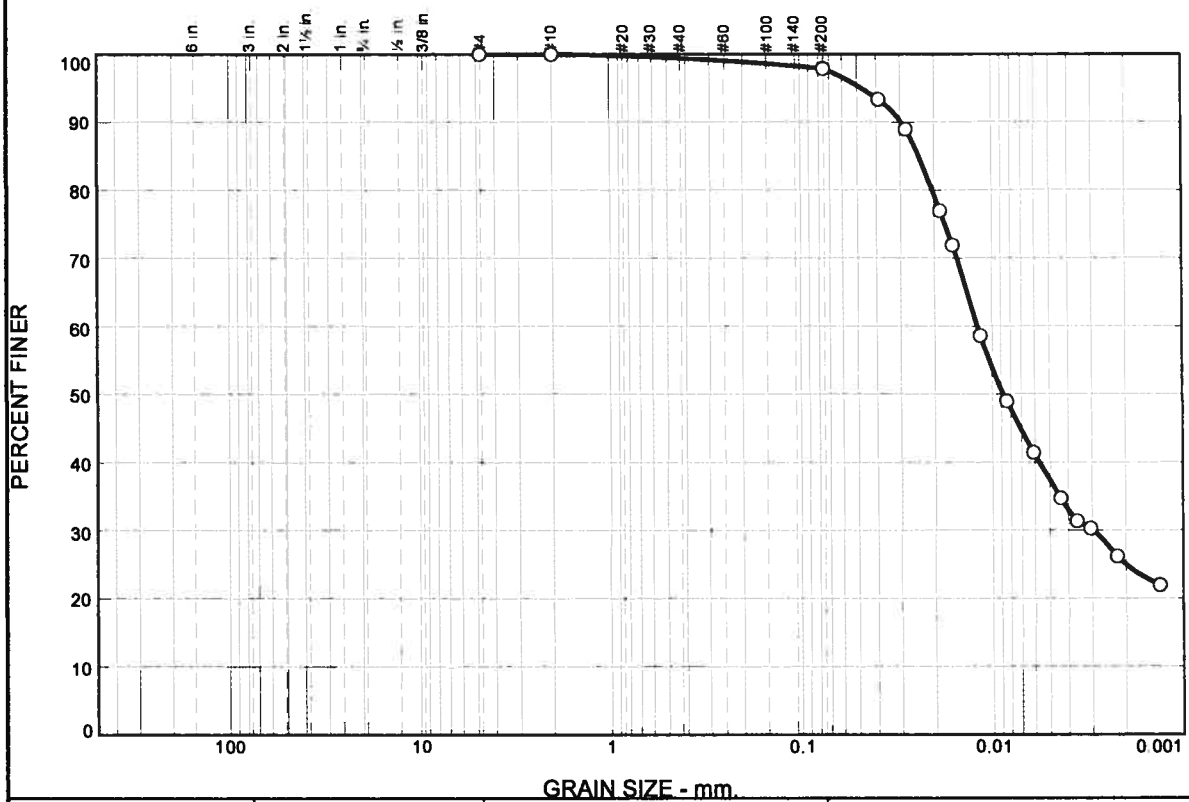
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: GC **Checked By:** DS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.6	1.5	60.4	37.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#200	97.9		
0.0387 mm.	93.4		
0.0279 mm.	89.0		
0.0186 mm.	77.0		
0.0160 mm.	71.9		
0.0115 mm.	58.6		
0.0084 mm.	49.0		
0.0061 mm.	41.4		
0.0044 mm.	34.8		
0.0036 mm.	31.4		
0.0031 mm.	30.3		
0.0022 mm.	26.2		
0.0013 mm.	22.0		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= 21 LL= 36 PI= 15

Coefficients

D_{90}= 0.0294 D_{85}= 0.0239 D_{60}= 0.0119
D_{50}= 0.0087 D_{30}= 0.0030 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(15)

Remarks

Sample Number: B-2 @ 21' **Depth:** 21 feet

Date: 12.27.11

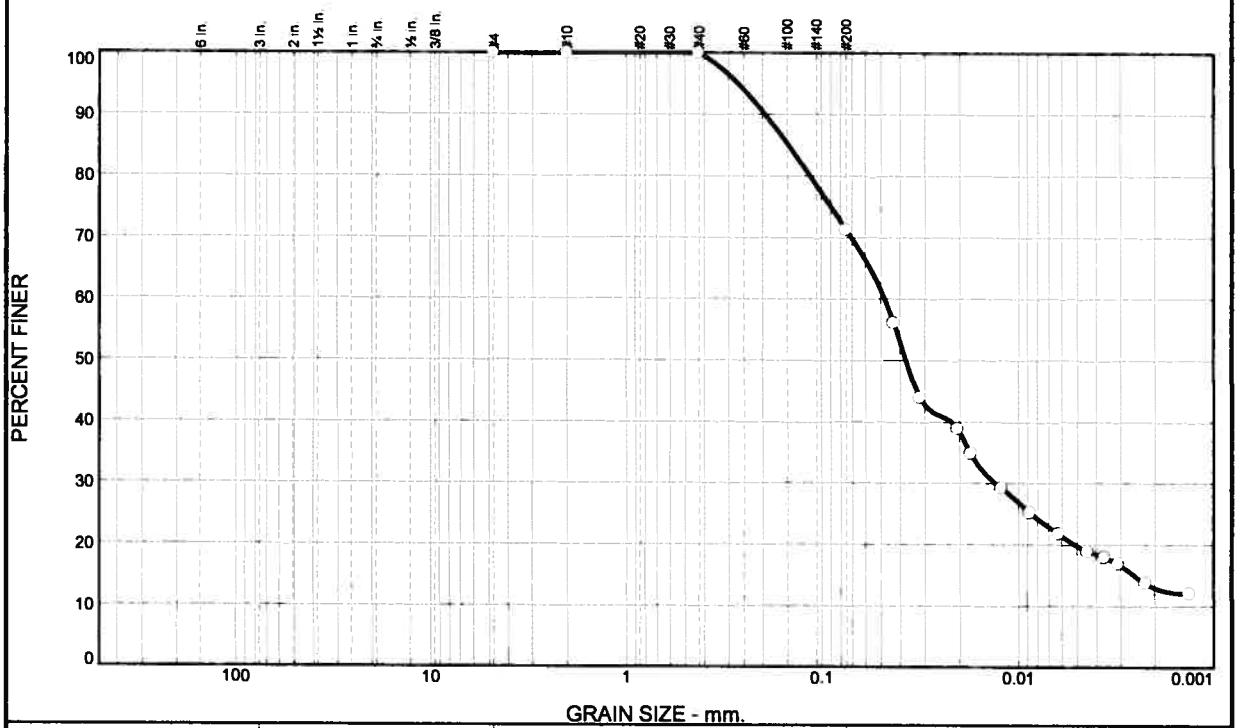
ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: GC **Checked By:** DS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	28.8	51.4	19.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#40	100.0		
#200	71.2		
0.0430 mm.	56.1		
0.0318 mm.	43.9		
0.0205 mm.	38.9		
0.0175 mm.	34.8		
0.0122 mm.	29.2		
0.0087 mm.	25.2		
0.0062 mm.	21.8		
0.0044 mm.	18.9		
0.0036 mm.	17.9		
0.0031 mm.	16.9		
0.0022 mm.	13.7		
0.0013 mm.	12.0		

* (no specification provided)

Soil Description

See exploration logs.

Atterberg Limits

PL= 20 LL= 25 PI= 5

Coefficients

D_{90}= 0.1949 D_{85}= 0.1482 D_{60}= 0.0478
D_{50}= 0.0375 D_{30}= 0.0131 D_{15}= 0.0025
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(2)

Remarks

Sample Number: B-4 @ 2' **Depth:** 2 feet

Date: 12/23/11

ENGEO INCORPORATED

Client: Lynden Homes
Project: Jones Property - Pleasanton, CA

Project No: 4425.000.000

Tested By: GC **Checked By:** DS

*EN*GEO Incorporated

SULFATE CONTENT RESULT(S)
CALTRANS Test Method 417

Project Name: Jones Property
Client: Lynden Homes
Tested by: TB

Project Number: 4425.000.000

Date: December 23, 2011

Sample Number	Sample Location	Matrix	Water Soluble Sulfate (SO_4) in Soil	
			mg/kg	% by Weight
1	**B-4@2'**	**soil**	**18**	**0.002**

SULFATE CONTENT RESULT(S)

CALTRANS Test Method 417

Project Name: Jones Property
Client: Lynden Homes
Tested by: TB

Project Number: 4425.000.000
Date: December 23, 2011

Sample Number	Sample Location	Matrix	Water Soluble Sulfate (SO_4) in Soil	
			mg/kg	% by Weight
1	B-4@2'	soil	18	0.002

Office: 2010 Crow Canyon Place, Suite 250, San Ramon, CA 94583
Laboratory: 2057 San Ramon Valley Boulevard, San Ramon, CA 94583

ENGEO INCORPORATED

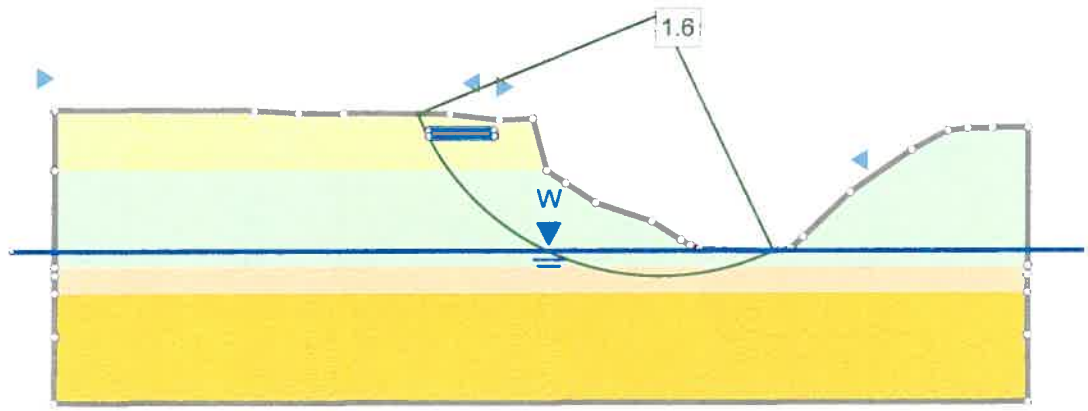
APPENDIX C

Slope Stability Analysis

APPENDIX C

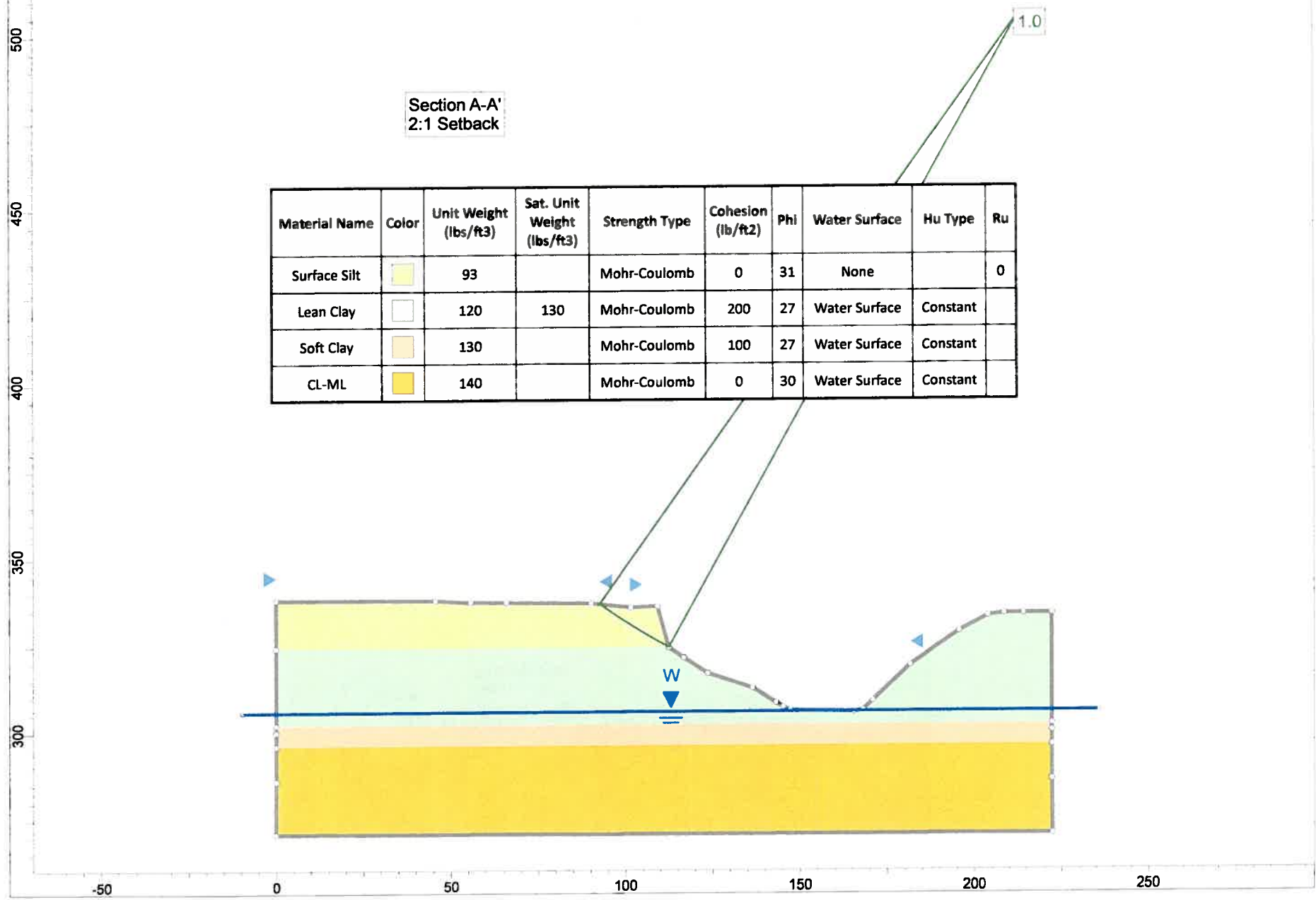
Section A-A'
2:1 Setback
Reinforced

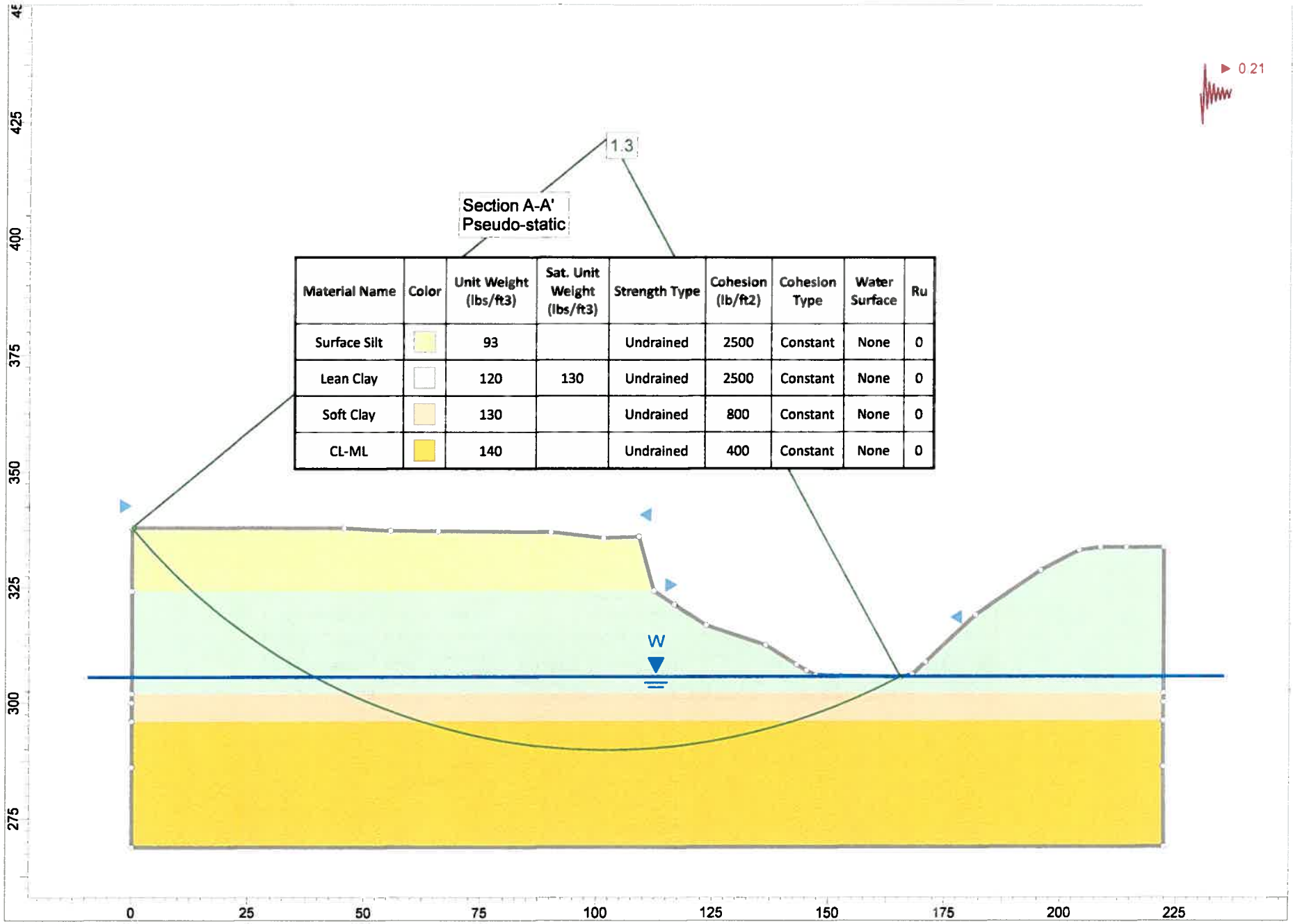
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	



Section A-A'
2:1 Setback

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	

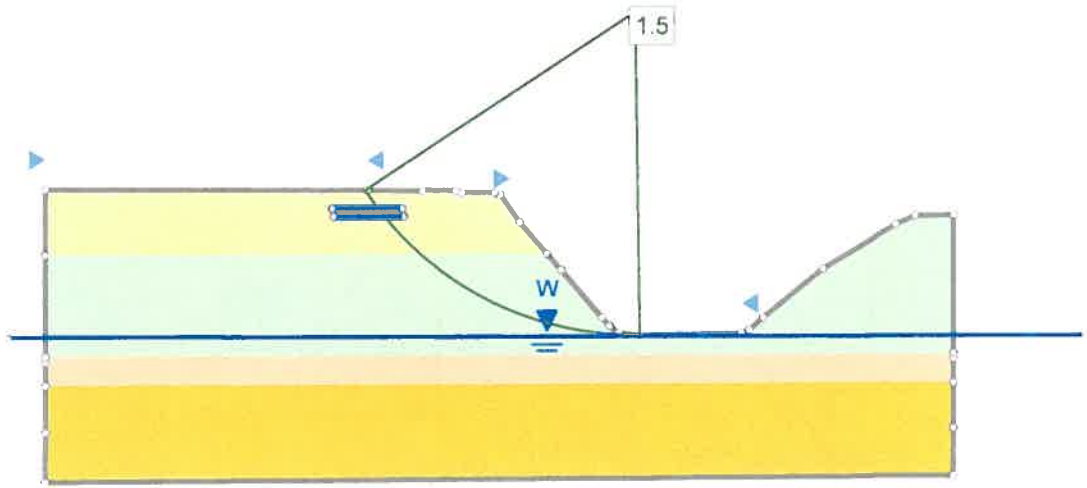


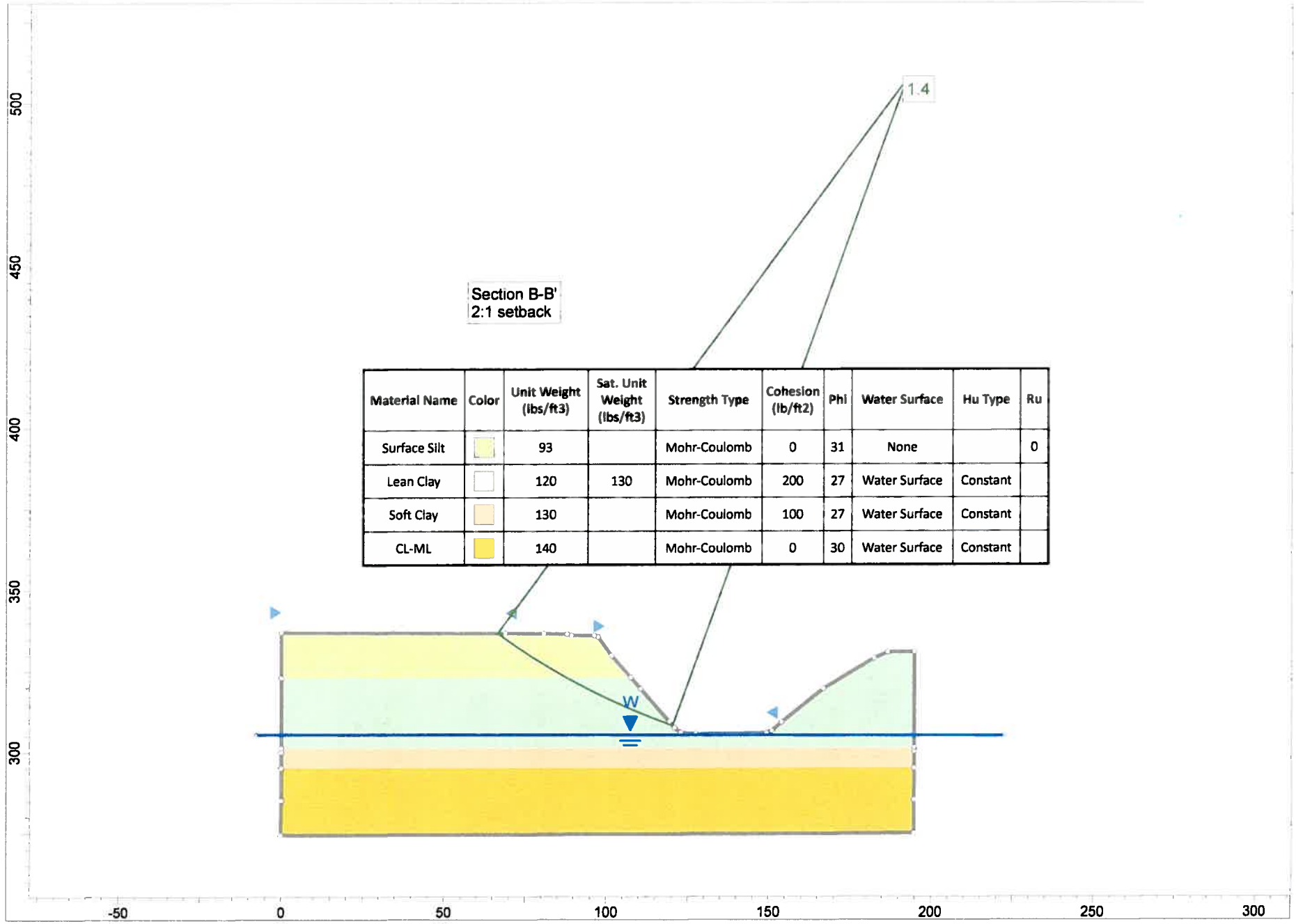


Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Cohesion Type	Water Surface	Ru
Surface Silt		93		Undrained	2500	Constant	None	0
Lean Clay		120	130	Undrained	2500	Constant	None	0
Soft Clay		130		Undrained	800	Constant	None	0
CL-ML		140		Undrained	400	Constant	None	0

Section B-B'
2:1 Setback
Reinforced

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	

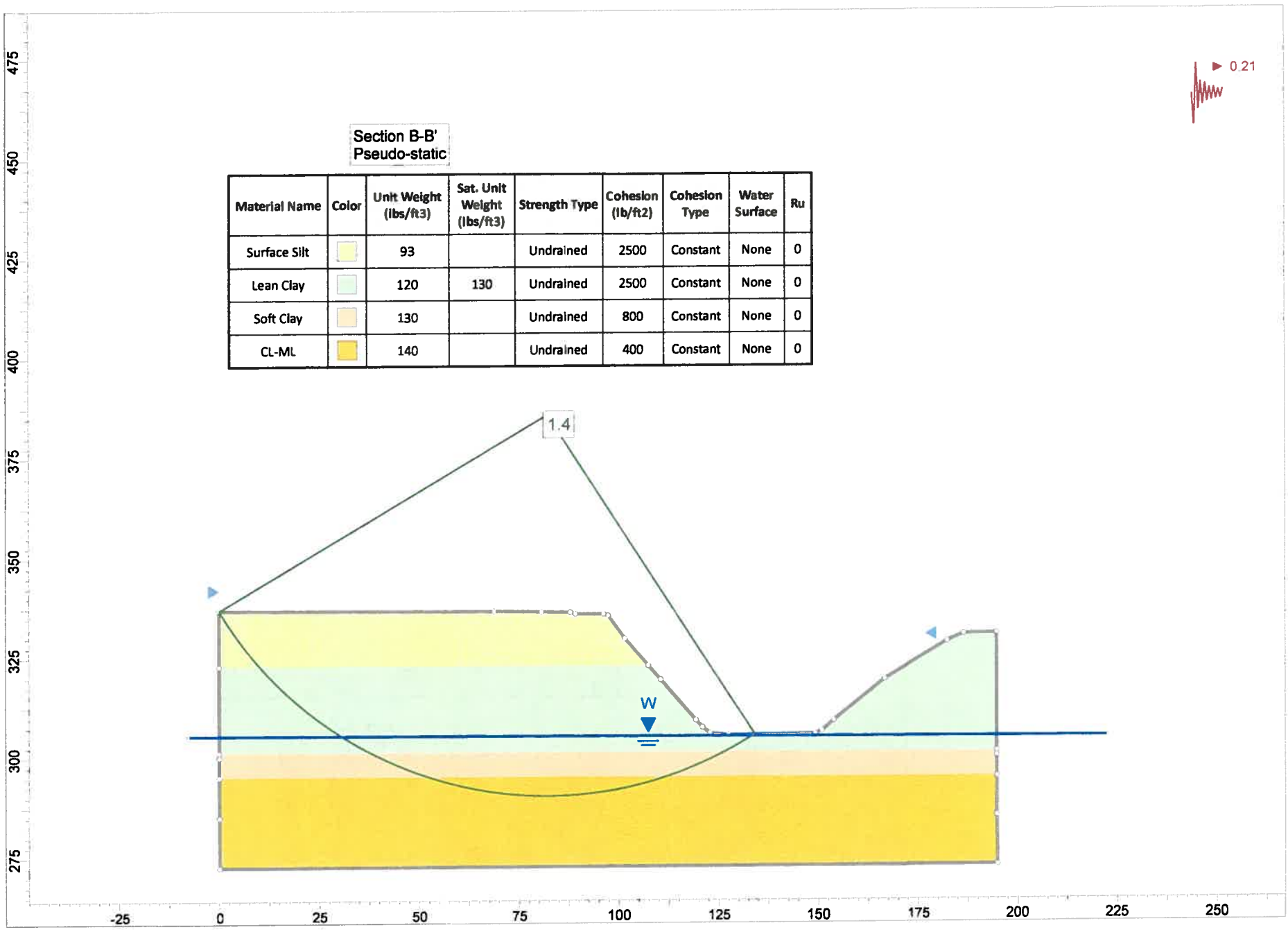




Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	

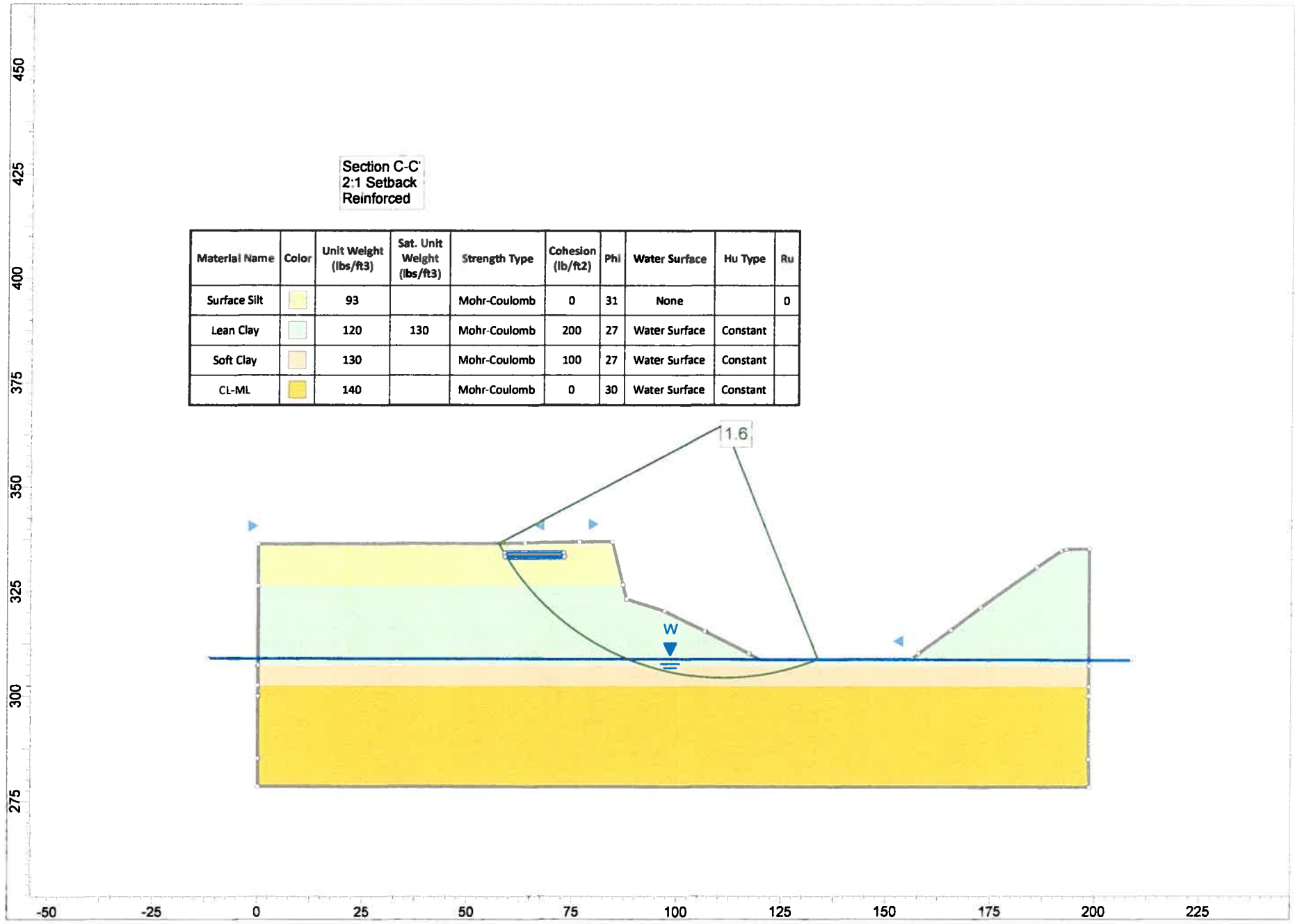
Section B-B'
Pseudo-static

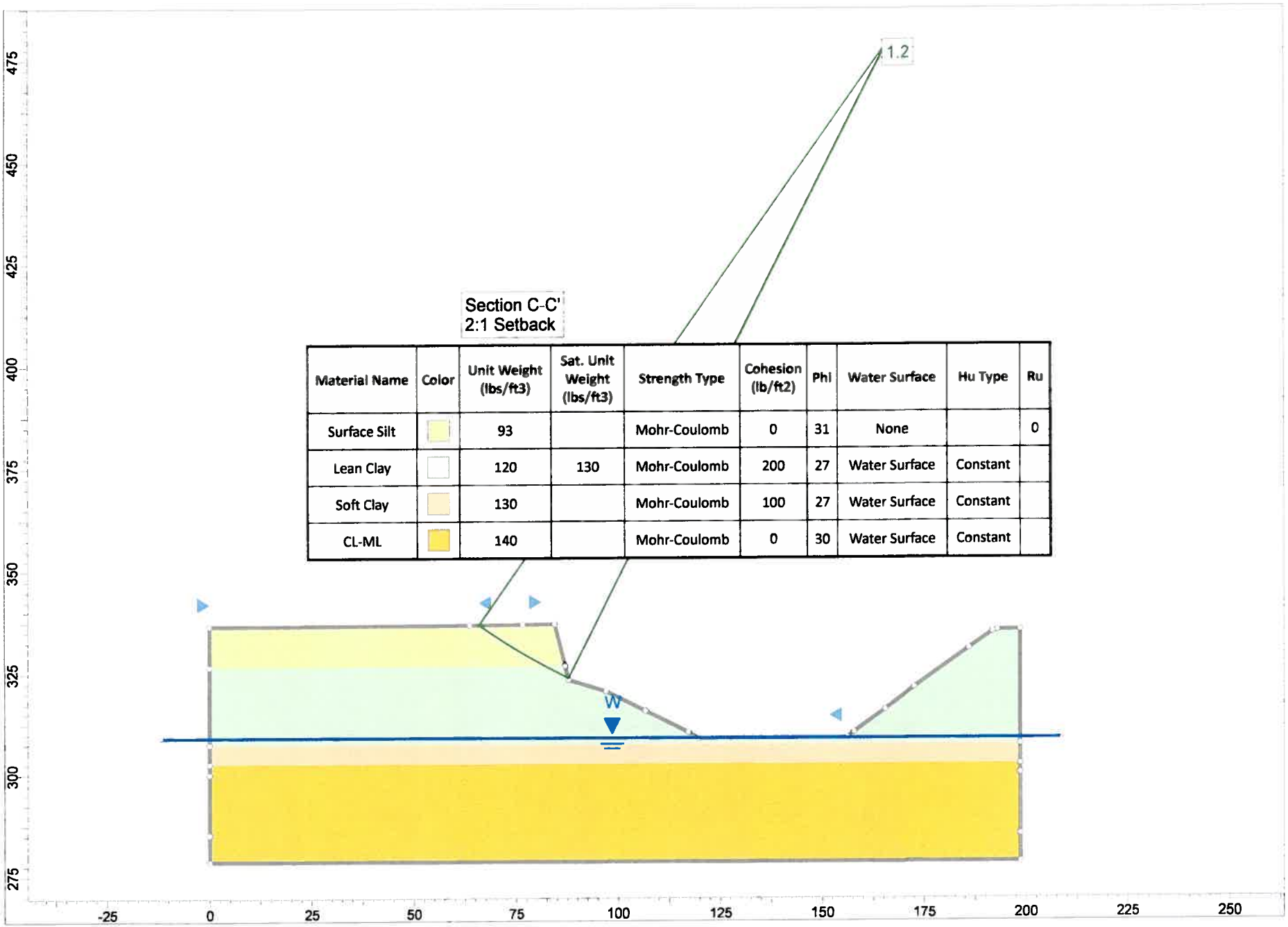
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Cohesion Type	Water Surface	Ru
Surface Silt		93		Undrained	2500	Constant	None	0
Lean Clay		120	130	Undrained	2500	Constant	None	0
Soft Clay		130		Undrained	800	Constant	None	0
CL-ML		140		Undrained	400	Constant	None	0



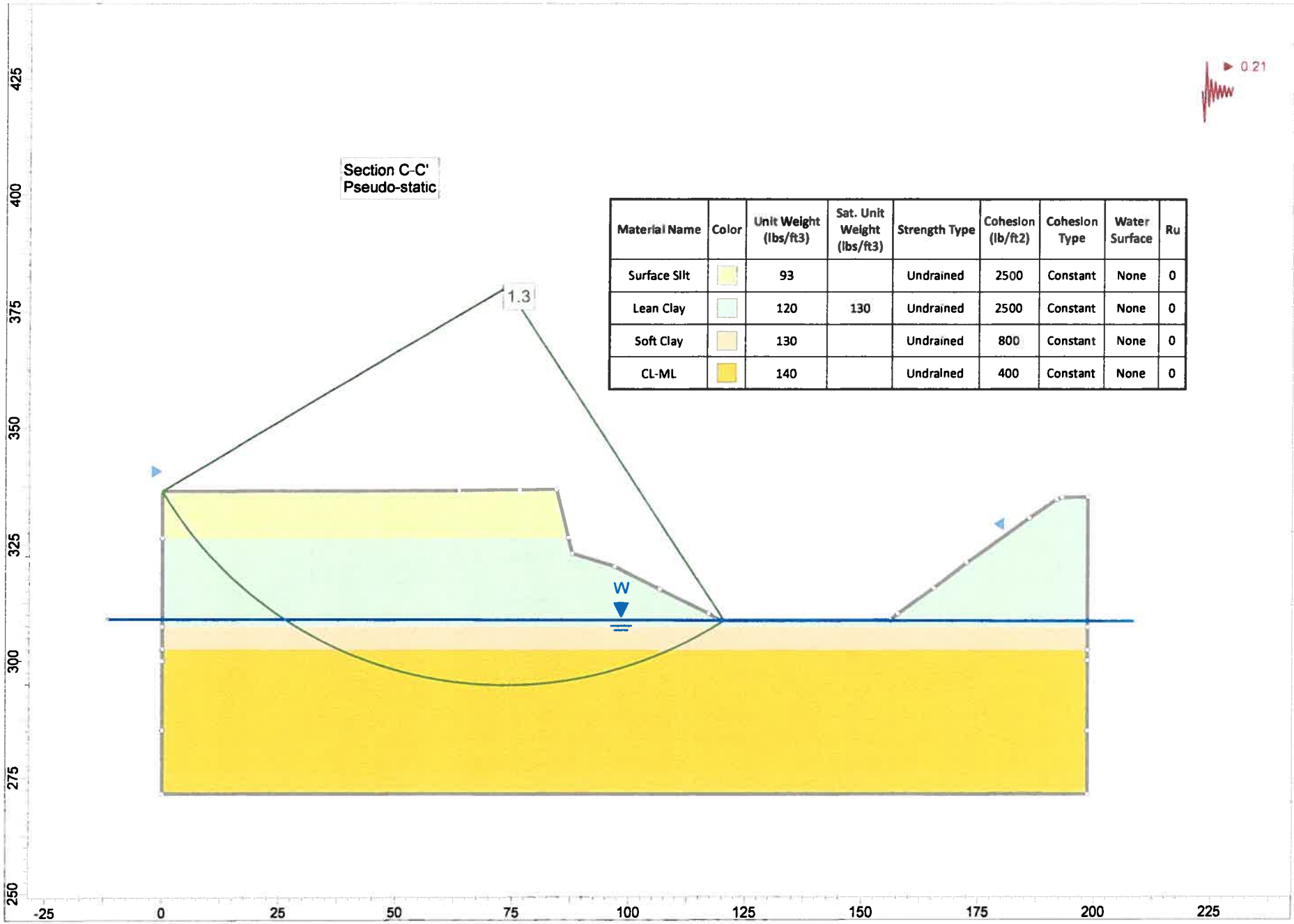
Section C-C'
2:1 Setback
Reinforced

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	





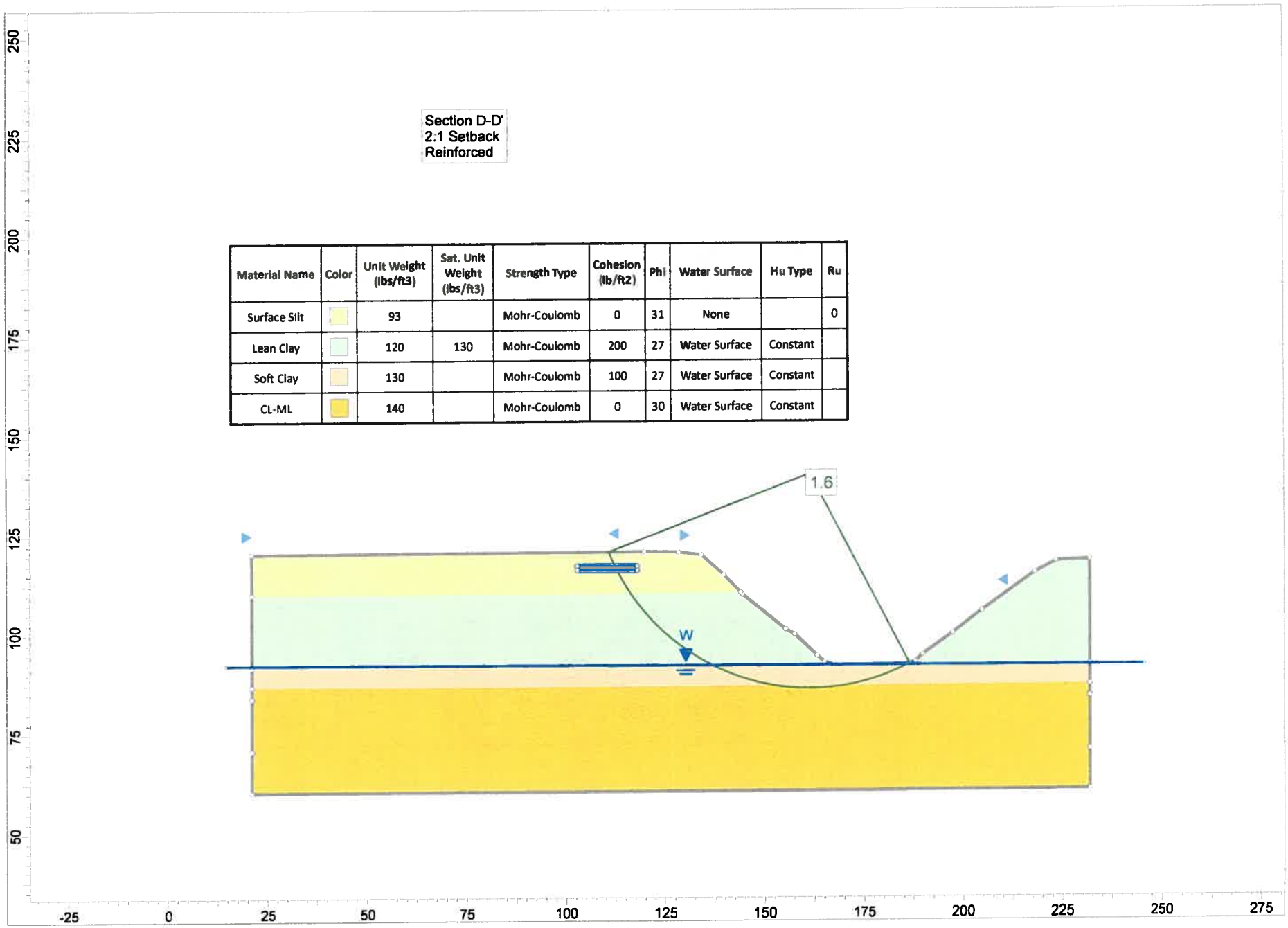
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	



Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Cohesion Type	Water Surface	Ru
Surface Silt		93		Undrained	2500	Constant	None	0
Lean Clay		120	130	Undrained	2500	Constant	None	0
Soft Clay		130		Undrained	800	Constant	None	0
CL-ML		140		Undrained	400	Constant	None	0

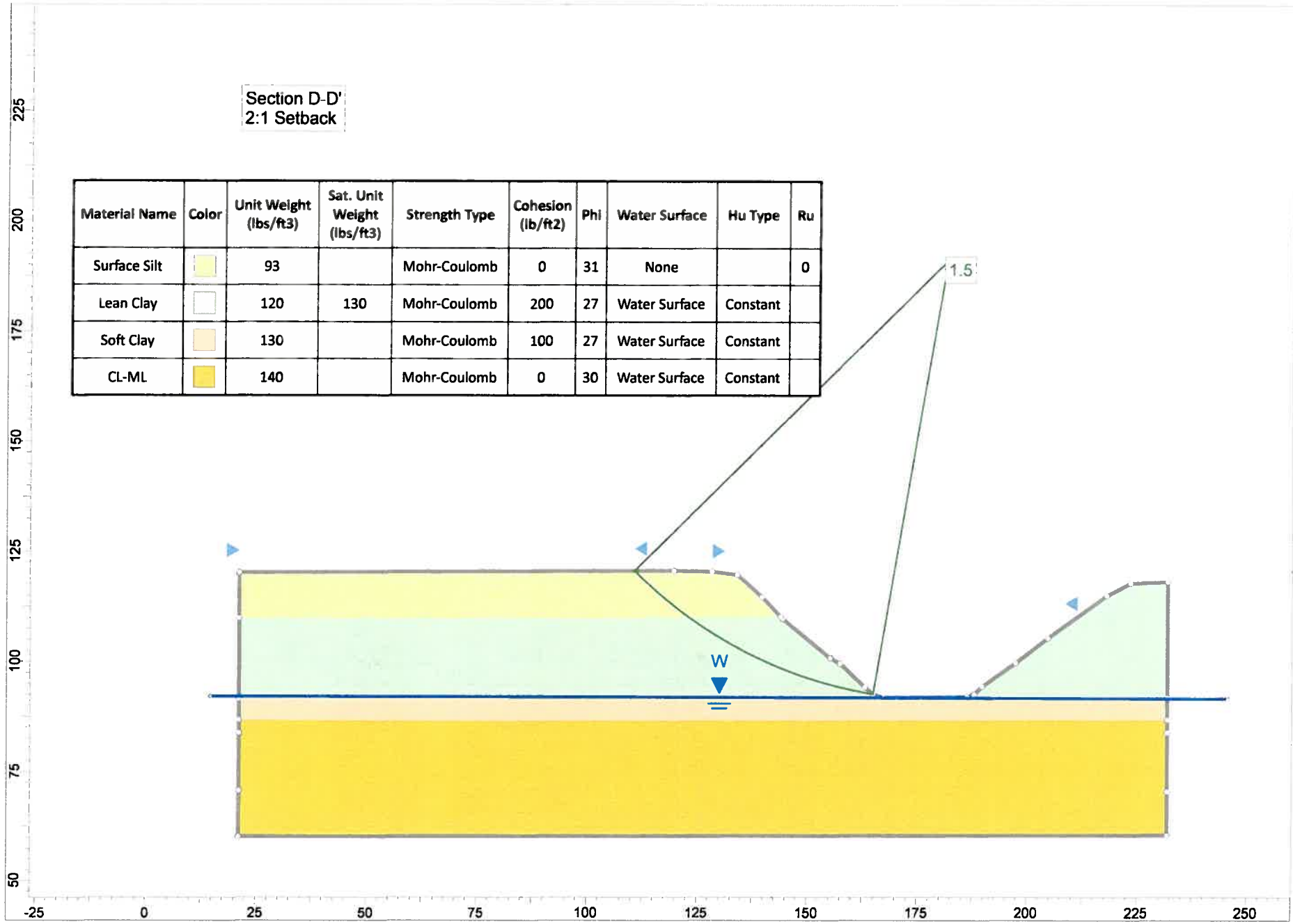
Section D-D'
2:1 Setback
Reinforced

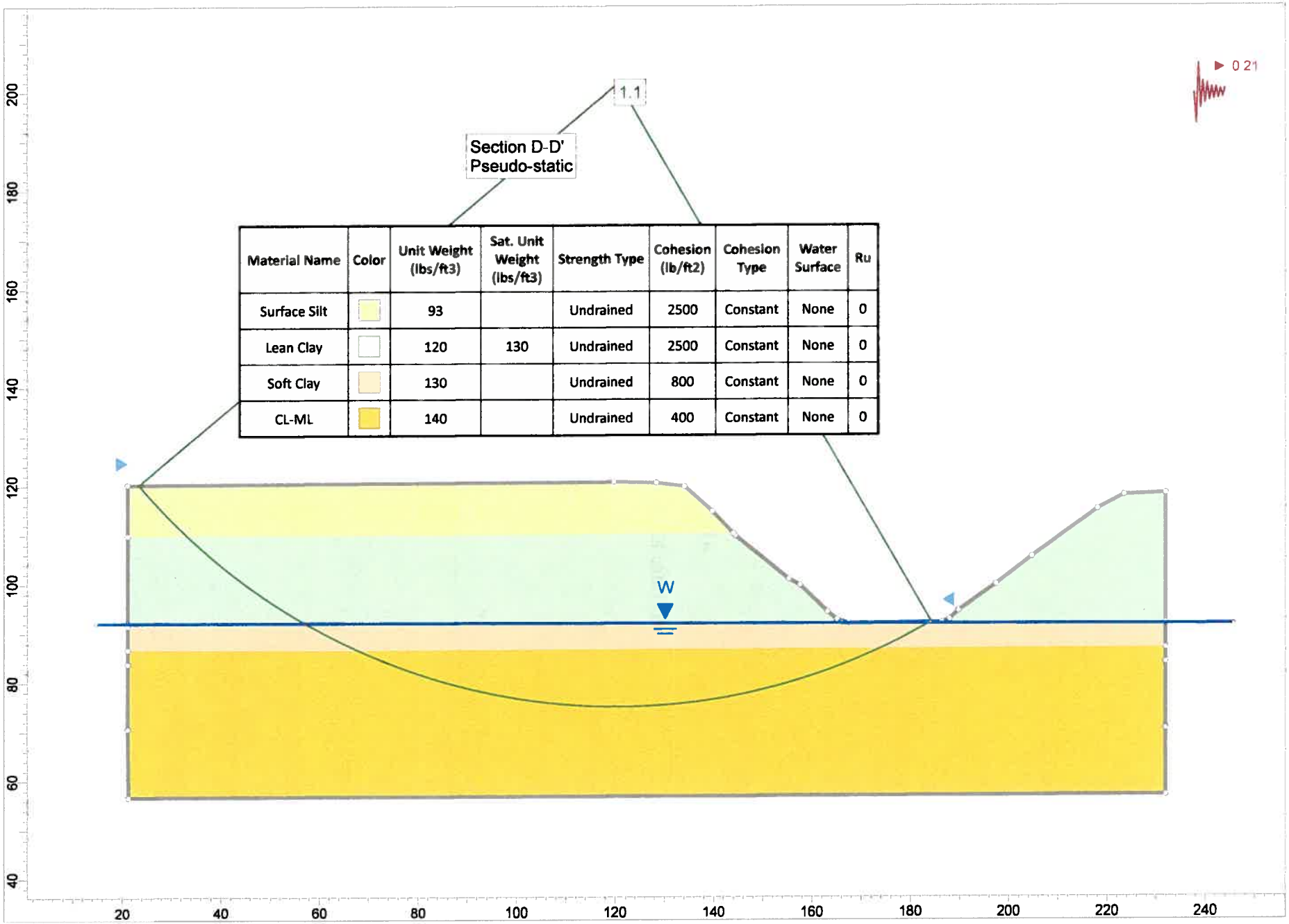
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	



Section D-D'
2:1 Setback

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type	Ru
Surface Silt		93		Mohr-Coulomb	0	31	None		0
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant	
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant	
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant	





Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Cohesion Type	Water Surface	Ru
Surface Silt		93		Undrained	2500	Constant	None	0
Lean Clay		120	130	Undrained	2500	Constant	None	0
Soft Clay		130		Undrained	800	Constant	None	0
CL-ML		140		Undrained	400	Constant	None	0

APPENDIX D

Previous Exploration Boring Logs

APPENDIX D

DATE OF BORING: January 16, 1998

SURFACE ELEVATION: Approx. 333.0 feet (101.5 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0				Plowed field over grayish brown clayey SILT, moist, soft.				
	1			Olive brown and yellowish brown clayey SILT with fine sand, rare fine rootlets, very moist, soft.				
5		1-1			2*	4.0*	94.4	20.7
	2							
		1-2		Grayish brown with olive brown sandy silty CLAY, trace fine sand, some fine rootlets, rare iron oxide, moist, stiff.	8*	1.86	106.5	16.1
10	3							
	4			Grayish brown with olive brown and yellowish brown sandy silty CLAY, some fine sand, rare fine subrounded gravel, slightly moist, very stiff.				
		1-3			23*	4.5+*	123.7	12.3
15				Gravelly silty SAND lens.				
	5			Grayish brown with olive brown and yellowish brown clayey SILT.				
				Olive brown with yellowish brown sandy clayey SILT, moist, very stiff.				
		1-4			20*		103.7	19.5
20	6			Olive brown with yellowish brown silty CLAY, trace fine sand, moist, very stiff.				
	7			Approximate flow line of creek at depth of 23 feet.				
		1-5		Olive brown with yellowish brown sandy clayey SILT, rare fine subrounded gravel, some carbonates and iron oxide, slightly moist, hard.	31*	4.5+*	123.0	11.9
25	8							
	9	1-6		Grayish brown and olive brown with yellowish brown sandy silty CLAY, some fine sand, rare fine rootlets, moist, stiff.	13*	1.30	109.2	19.9
30								

MET 4425 2/24/98

ENGEO INCORPORATED

1635/1777 ROSE AVENUE

PLEASANTON, CALIFORNIA

BORING NO.: B1

DATE: February 1998

PROJECT NO.: 4425.E1

CHECKED BY

FIGURE NO. 5

DATE OF BORING: January 16, 1998

SURFACE ELEVATION: Approx. 333.0 feet (101.5 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
			Water level at time of drilling.				
	10		Silty SAND lens, very moist.				
35		1-7	Grayish brown with yellowish brown and olive brown silty CLAY, some fine sand, very moist, stiff.	9*	1.0*		21.1
	11		Silty SAND lens, very moist.				
	12	1-8	Olive brown with yellowish brown sandy silty CLAY, trace iron oxide, very moist, stiff.	13			20.3
40			Bottom of boring at approximately 39.5 feet.				
	13						
45							
	14						
	15						
50							
	16						
55							
	17						
	18						
60							

MET 4425 2/24/98

ENGEO INCORPORATED

1635/1777 ROSE AVENUE

PLEASANTON, CALIFORNIA

BORING NO.: B1

DATE: February 1998

PROJECT NO.: 4425-E1

CHECKED BY

FIGURE NO. 5

DATE OF BORING: January 16, 1998

SURFACE ELEVATION: Approx. 334.0 feet (101.8 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0				Plowed field over olive brown clayey SILT, very moist, soft.				
	1	2-1		Olive brown with yellowish brown clayey SILT with fine sand, some rootlets, very moist, soft.	2*	2.25*	94.9	22.4
5								
	2	2-2		Light yellowish brown with olive brown clayey SILT, some fine sand, trace carbonates, slightly moist, stiff.	10*	4.5+*	105.9	10.2
10	3							
	4	2-3		Olive brown with light yellowish brown clayey sandy SILT with fine sand, rare fine gravel, trace iron oxide and carbonates, slightly moist, stiff.	14*	4.0*	111.4	17.6
15								
	5	2-4		Light yellow brown with olive brown clayey SILT, some fine sand, trace iron oxide, slightly moist, very stiff.	23*	4.0*	114.0	9.2
	6			Bottom of boring at approximately 18.5 feet. Groundwater not encountered.				
20								
	7							
25								
	8							
30	9							

MET 4425 2/24/98

ENGEO INCORPORATED

1635/1777 ROSE AVENUE

PLEASANTON, CALIFORNIA

BORING NO.: B2

DATE: February 1998

PROJECT NO.: 4425-E1

CHECKED BY

FIGURE NO. 6

DATE OF BORING: January 16, 1998

SURFACE ELEVATION: Approx. 335.0 feet (102.1 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0				Plowed field over dark yellowish brown clayey SILT with fine sand, very moist, soft.				
	1			Dark yellowish brown clayey SILT with fine sand, trace rootlets, moist, soft.				
		3-1			3*	2.25*	101.6	19.7
5								
	2							
				Olive brown with light yellowish brown clayey SILT with fine sand, moist, stiff.				
		3-2			9*	4.5+*	105.3	18.6
10	3							
	4			Olive brown with yellowish brown clayey SILT with fine sand, trace rootlets, moist, stiff.				
		3-3			14*	4.5*	114.6	15.6
15	5							
				Gravelly SAND lens.				
		3-4		Olive brown with yellowish brown silty CLAY, some fine sand, very moist, stiff.	11*	2.25*	101.7	23.9
20	6			Bottom of boring at approximately 19.5 feet. Ground water not encountered.				
	7							
25								
	8							
	9							
30								

MET 4425 2/27/98

ENGEO INCORPORATED

1635/1777 ROSE AVENUE

PLEASANTON, CALIFORNIA

BORING NO.: B3

DATE: February 1998

PROJECT NO.: 4425-E1

Checked by

FIGURE NO. 7

DATE OF BORING: January 16, 1998

SURFACE ELEVATION: Approx. 334.0 feet (101.8 meters)

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DESCRIPTION	N S.P.T. BLOWS/FT *MODIFIED FOR 3" O.D. SAMPLER	qu UNCON. COMP. STRENGTH (TSF) *FIELD PENET. APPROX.	IN PLACE DRY UNIT WEIGHT (PCF)	IN PLACE MOIST. CONTENT % DRY WEIGHT
0				Native grass over grayish brown clayey SILT, very moist, soft.				
	1							
5		4-1		Yellowish brown with olive brown clayey sandy SILT, rare fine rootlets, trace iron oxide, damp, soft to about 4' then medium stiff.	7*	4.5+*		4.4
	2							
10	3							
		4-2		Olive brown and yellowish brown clayey SILT, some fine sand, rare fine rootlets, some carbonates, slightly damp, very stiff.	16*	4.5+*	105.0	
	4							
15								
	5	4-3		Olive brown clayey silty SAND, some subrounded gravel, trace iron oxide and carbonates, slightly moist, medium dense.	21*	4.5+*	120.7	7.0
				Bottom of boring at approximately 16.5 feet. Groundwater not encountered.				
20	6							
	7							
25								
	8							
30	9							

MET 4425 5/6/98

ENGEO INCORPORATED

1635/1777 ROSE AVENUE

PLEASANTON, CALIFORNIA

BORING NO.: B4

DATE: May 1998

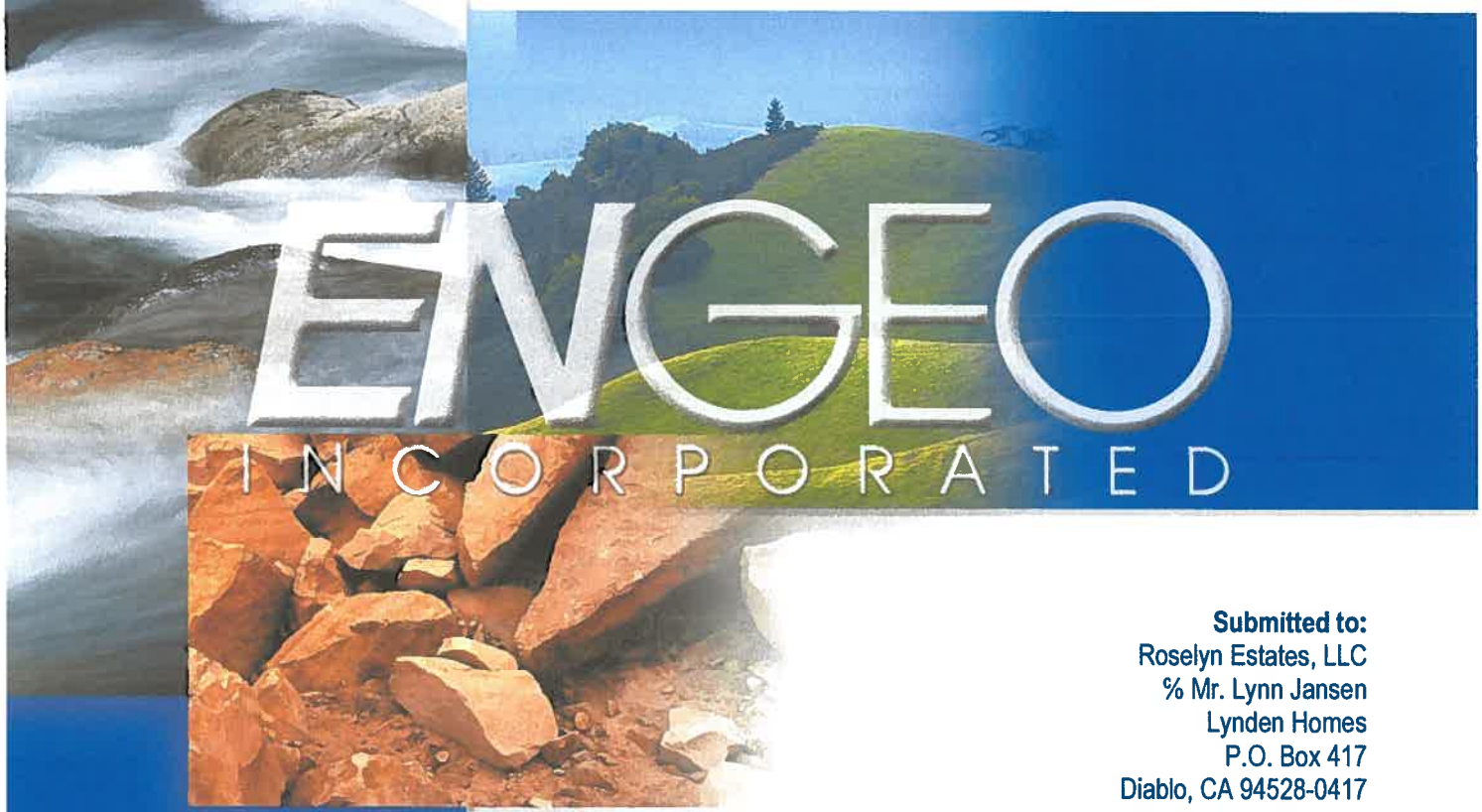
PROJECT NO.: 4425.E1

CHECKED BY

FIGURE NO. 8

HYDRAULIC EVALUATION AND BANK EROSION ANALYSIS OF ARROYO DEL VALLE

ROSELYN ESTATES II PROPERTY
1623 CINDY WAY – PARCEL B
PLEASANTON, CALIFORNIA



Submitted to:
Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

Prepared by:
ENGEO Incorporated

August 1, 2012

Project No:
4425.000.000

- Expect Excellence -

PUD-94
EXHIBIT B

Project No.
4425.000.000

August 1, 2012

Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

Subject: Roselyn Estates II Property
1623 Cindy Way – Parcel B
Pleasanton, California

HYDRAULIC EVALUATION AND BANK EROSION ANALYSIS OF ARROYO DEL VALLE

Dear Mr. Jansen:

With your authorization, we have evaluated the fluvial hydraulic characteristics and bank erosion potential of Arroyo del Valle specifically for the reach that is located at 1623 Cindy Way – Parcel B. The purpose of this report is to provide design recommendations for the proposed project.

If you have any questions or comments regarding this report, please call and we will be glad to discuss them with you. We look forward to working with you to successfully complete your project. We are pleased to be of service for this study and will continue to consult with you and your design team as project planning progresses.

Sincerely,

ENGEO Incorporated

Sean Cleary, PE
sc/jb/rs/jf

Jonathan Buck, GE

REGISTERED PROFESSIONAL ENGINEER
JONATHAN BUCK
No. 2958
Exp. 9/30/2012
GEOTECHNICAL
STATE OF CALIFORNIA

Attachments: List of References
Figures
Appendix A – HEC-RAC Output Tables

TABLE OF CONTENTS

1.0 INTRODUCTION

The proposed project is a seven single-family residential lot development on a 4-acre site that is located at 1623 Cindy Way – Parcel B. The site is immediately adjacent to Arroyo Del Valle and is located east of Cindy Way and Lynn Drive, north of Rose Avenue and the Alameda County Fairgrounds, and south of the creek as shown on the Vicinity Map, Figure 1.

The site topography is relatively level at approximately 339 feet above mean sea level (msl). The creek bank is approximately 30 feet high in most locations. The creek bank and slopes contain dense vegetation and a significant amount of accumulated debris, including concrete, wood, and old fencing materials.

The upstream boundary of the hydraulic model begins approximately at the upstream property line of the project parcel and ends approximately 60 feet downstream of the subject parcel. It is our understanding that the purpose of this study is twofold:

1. Estimate the velocity and water surface profile of Arroyo Del Valle within the limits of the study reach for various peak hydrologic flow rates, as requested by the City of Pleasanton.

2. Assess the current condition and estimate the erosion potential of the southerly creek bank of Arroyo Del Valle within the limits of your project and validate the structural setback zones recommended in the previous studies, including the property immediately to the east of this study (References 1, 2, and 3).

It should be noted that a structural setback zone is required along the creek by Alameda County Flood Control and Water Conservation District (ACFC and WCD) Zone 7. The intent of the setback zone is to mitigate potential structural hazards posed by potential bank failure.

2.0 HYDRAULIC MODELING

The fluvial hydraulic analysis of this portion of Arroyo Del Valle was performed using the HEC-RAS Version 4.1.0 computer program published by the United States Army Corps of Engineers (USACE). HEC-RAS performs one-dimensional hydraulic analyses for natural channels and is intended for calculating water surface profiles and velocities in steady, gradually varied flow conditions. The basic HEC-RAS computational procedure is based on the solution of the one-dimensional energy equation. Energy losses consist of friction losses (based on Manning's equation), as well as expansion and contraction losses, where applicable. The development of the HEC-RAS models specific to this study is described in detail below.

2.1 Boundary Conditions

The hydraulic model is based on 'normal depth' boundary conditions, whereby HEC-RAS calculates an initial water surface profile based on the bedslope of the creek. The 'normal depth' HEC-RAS model was through the project parcel. An estimated bed slope for the Arroyo del Valle of 0.003 ft/ft was used as the upstream and downstream boundary conditions for

computational purposes. Further discussion about the creek bed slope is found in this report. The extension of the HEC-RAS model at this particular length is a general standard of practice in cases where there is no known water surface elevation which can be used as a tailwater boundary condition within the actual study reach itself. The portion of Arroyo Del Valle through which the HEC-RAS model has been extended can be characterized as a relatively flat reach with little sign of instability and fairly consistent cross sectional area.

2.2 Channel Geometry

In order to model the channel geometry of the fluvial system, cross sections were drawn perpendicular to the direction of flow in Arroyo Del Valle at approximately 100-foot intervals along the project reach. Representative elevations and locations were entered into the HEC-RAS program at these stations. Elevation data used in the model was obtained from a combination of sources. A survey completed for the area dated October 20, 1998, by Aero-Geodetic Survey, Inc., was merged with topographic data from Debolt Engineering 2011. Confirmation of the current valid applicability of that survey data was provided by two field survey performed on November 23, 2004, and January 19, 2005, by Alexander and Associates, the Project Surveyor. Respective locations of cross-sectional stations are shown on Figure 2. In general, the geometry of the creek bottom is based on survey shots performed by Alexander and Associates in 2004 through 2005. Since the channel is fairly consistent in shape, this cross sectional geometry was assumed to represent the channel shape in areas lacking detailed survey data. The creek banks are modeled using the Aero-Geodetic survey from 1998.

2.3 Input of Channel Flow Rate

Flow rates for the 100-year and 15-year events, of 7,000 and 4,600 cubic feet per second (cfs), respectively, were used to model peak hydrologic flow rates through the channel in the HEC-RAS model. These flow rates were furnished by ACFCWCD Zone 7 for this reach of Arroyo del Valle based on hydrologic modeling prepared by others.

2.4 Input of Hydraulic Coefficients

The value of the Manning's roughness coefficient (n) establishes frictional resistance in the channel and is thus related to the modeling of channel velocity and water surface profile by the HEC-RAS program. In accordance with Table 3.1 of the USACE HEC-RAS Hydraulic Manual (Reference 4), an 'n' value was selected that typified the hydraulic roughness created by vegetation and other factors encountered throughout the study reach. This value is based on recommended minimum, maximum and normal values developed for a variety of vegetative and morphological conditions similar to those found in the channel and banks of the study creek. The following table summarizes the use of the coefficient in the modeling.

TABLE 2.4-1

Manning's 'n' value	Description
0.07 (banks)	Scattered brush, heavy weeds (maximum condition) Very weedy reaches with heavy stands of timber (minimum condition)
0.04 (active channel)	Clean winding channel, some pools and shoals (normal condition)

With the exception of the active creek channel, the selected '*n*' value of 0.07 is consistent with hydraulic modeling performed by Ruggeri-Jensen-Azar for Arroyo Del Valle upstream of the subject property and approved by ACFCWCD Zone 7 in Reference 5.

The limits of the active channel, and corresponding Manning's 'n' values, are shown on Figure 1 and are based on survey information collected by Alexander and Associates in November 2004 and observation work conducted by ENGEO during a November 2011 reconnaissance visit.

Photographs of the Arroyo are presented in Figure 2 that depict the types of established ri arian vegetative growth and fluvial morphology found within the subject reach.

In conformance with USACE guidelines, dimensionless channel expansion and contraction energy losses were computed using the following coefficients.

TABLE 2.4-2

Expansion (channel)	0.3
Contraction (channel)	0.1

2.5 Flow Regime

Based on the preliminary results of the modeling, no supercritical flows were encountered in the study reach for the analyses. Therefore, the final results of the study are based on a subcritical flow regime analysis.

3.0 RESULTS OF MODELING

The following tables summarize the results of the studies.

TABLE 3.0-1
Results of Fluvial Hydraulic Analysis

15-YEAR NORMAL HYDRAULIC ANALYSIS						
Station	Q (cfs)	Water Surface El. (ft)	Total Velocity (fps)	Left Bank Velocity (fps)	Total Shear (lb/sqft)	Left Bank Shear (lb/sqft)
17+39	4,600	320.3	6.6	4.4	2.3	1.3
17+92	4,600	320.7	6.9	1.8	1.4	0.3
18+81	4,600	320.6	8.4	3.6	2.2	1.1
20+02	4,600	321.4	6.5	3.2	1.5	0.8
20+71	4,600	321.6	6.1	2.7	1.4	0.6
21+53	4,600	321.7	6.4	2.8	1.4	0.6
22+55	4,600	321.4	7.4	5.4	3.7	2.1
22+90	4,600	322.0	7.1	3.2	2.0	0.8
23+95	4,600	322.4	6.6	3.3	1.9	0.8
24+62	4,600	322.5	6.8	3.9	2.1	1.1
25+94	4,600	322.8	6.9	3.9	2.1	1.1

TABLE 3.0-2
Results of Fluvial Hydraulic Analysis

100-YEAR NORMAL HYDRAULIC ANALYSIS						
Station	Q (cfs)	Water Surface El. (ft)	Total Velocity (fps)	Left Bank Velocity (fps)	Total Shear (lb/sqft)	Left Bank Shear (lb/sqft)
17+39	7,000	323.62	7.5	5.1	3.0	1.7
17+92	7,000	324.22	7.4	2.4	1.6	0.5
18+81	7,000	323.96	9.0	4.3	2.6	1.3
20+02	7,000	324.83	7.1	3.8	1.9	1.0
20+71	7,000	325.06	6.8	3.2	1.7	0.7
21+53	7,000	325.22	7.0	3.3	1.8	0.8
22+25	7,000	324.91	7.9	6.0	4.2	2.4
22+90	7,000	325.28	8.1	3.9	2.6	1.1
23+95	7,000	325.9	7.2	3.9	2.3	1.1
24+62	7,000	326.01	7.4	4.6	2.5	1.4
25+94	7,000	326.3	7.4	4.6	2.5	1.4

4.0 BANK EROSION POTENTIAL

The following table summarizes the range of velocities calculated for the reach from the HEC-RAS modeling.

TABLE 4.0-1

RANGE OF CALCULATED VELOCITIES		
Model	Area	Velocity (ft./sec.)
15-yr. Normal Depth	Total Left Bank	6.1 - 8.4 2.7 – 3.9
100-yr. Normal Depth	Total Left Bank	6.8 – 9.0 2.4 – 6.0

Based on research published by the United States Army Corps of Engineers in Reference 8, which provides erosion threshold guidance for flood control channels, the allowable mean velocity for a channel comprised of a silty clay soil and vegetated with Bermuda grass is 8.0 feet per second. The soil boring furnished in Appendix B taken near the creek in Reference 1 characterized the soil horizon at the flowline of Arroyo Del Valle as a silty clay. The total velocity slightly exceeds 8 feet per second at two cross sections. The calculations indicate the total velocity at Section 18+81 during the 15-year peak flow is 8.4 ft/sec and 9.0 ft/sec during the 100-year peak flow. The total velocity Section 22+90 is approximately 9.0 during the 100-year peak.

It is our opinion that the root architecture of the plants found on the banks of Arroyo Del Valle will provide greater erosion protection than the roots of Bermuda grass. The banks of the creek are heavily vegetated with brush, shrubs, and trees. Additionally, it is our opinion that the actual velocities at the creek bottom and banks are substantially less than what is furnished in the HEC-RAS studies, since HEC-RAS calculates average velocities across a channel and the velocities are actually not uniformly distributed in the creek section. Studies performed by Chow (1959) indicate that due to friction along the walls and bottom of an open channel section, the actual velocity at the boundary of a creek channel is approximately one-half the calculated "average" velocity. Accordingly, actual maximum velocities likely approach only about 4.5 feet per second at the channel bottom where the water is in contact with the bed material. The calculations also indicate that velocities along the left bank, which is the project's side of the creek, is significantly less than 8 ft/sec.

Therefore, we conclude that the potential for erosion in Arroyo Del Valle is negligible based on average velocity calculations, since velocities do not significantly and consistently exceed published erosion threshold standards, especially in the heavily vegetated bank areas.

5.0 CHANNEL EROSION POTENTIAL

The potential for long-term degradation or downcutting of the creek bed has also been evaluated for this reach of Arroyo Del Valle as part of this study. A major indicator for the potential of long-term channel degradation in a fluvial system is the measurement of the system's bed slope which should be similar to that of other similar systems which are in a state of erosion/deposition equilibrium. The concept of an 'equilibrium' bed slope is based on basic principles of fluvial geomorphology and suggests that a creek will adjust its bed slope over the long term so that the system transports all of its sediment without net deposition or erosion. Based on field observations, it is apparent that the creek bed has formed a pool and riffle system in the channel bed since there are several undulations in the flowline as the creek progresses downstream. Since this is the case, the bed slope of the creek will be estimated by the slope of the Energy Grade Line (EGL) computed by HEC-RAS which provides a reasonable indicator of the overall creek slope.

The creek's EGL is between 0.0015 and 0.0040 ft./ft. for the 'normal depth' HEC-RAS model. Based on our experience with the geomorphology of other creeks in the San Francisco East Bay region, these values are actually slightly lower that the 'equilibrium' bed slope for a fluvial system with a 15-year discharge of 4,600 cfs such as Arroyo Del Valle (0.0033 – 0.00 45 ft./ft.).

Our opinion is that because the EGL slope is actually on average less than the range estimated for stable slopes for creeks of this size, the active creek channel may experience some deposition over the long term rather than erosion. Moreover, the creek has historically armored its channel and banks to withstand higher flows and velocities than currently anticipated, through deposition of larger colloidal material at greater velocities reducing the potential for channel erosion.

Thus, because the bed slope of the creek is slightly less than what one would expect for an 'equilibrium' slope condition for a fluvial system of this size, long-term erosion in the channel in this reach of Arroyo Del Valle is considered to be unlikely. The evaluation of erosion potential presented in this document, are based on existing conditions. Future modifications to the creek geometry upstream or downstream of the subject property may impact future erosion potential.

6.0 RECOMMENDATIONS

The following setbacks are recommended in Reference 1.

- 3:1 (horizontal:vertical) line of projection from the toe of the creek bank to the top of the bank plus an additional horizontal distance of 15 feet for habitable structures.
- 2.5:1 line of projection from the toe of the creek bank to the top of the bank for non-habitable improvements, including the proposed Lynn Drive if no reinforcement is used.
- 2:1 line of projection from the toe of the creek bank to the top of the bank for non-habitable improvements, including the proposed Lynn Drive if two layers of Tensar Ux1400HS or approved equivalent geogrid reinforcement is placed as indicated in Reference 1.

Rainfall runoff should be designed to drain away from the top of creek bank into the storm drain system that is proposed for the project, which will prevent the ponding of water on the relatively flat areas directly behind the creek bank in the setback area.

Based on the results of the fluvial hydraulic evaluation and the visual survey and slope stability analysis conducted for this report, the above-described setbacks recommended in References 1 and 2 should provide sufficient protection to the surrounding development from any creek-related hazard. Additionally, the recommendations for site development and assessment of creek bank stability provided in References 1 and 2 remain valid. Because of the extensive vegetation, no additional creek bank mitigation is recommended for this reach of creek.

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report is issued with the understanding that it is the responsibility of the owner to transmit the information and recommendations of this report to developers, contractors, buyers, architects, engineers, and designers for the project so that the necessary steps can be taken by the contractors and subcontractors to carry out such recommendations in the field. The conclusions and recommendations contained in this report are solely professional opinions.

The professional staff of ENGEO Incorporated strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. There are risks of earth movement and property damages inherent in land development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our work.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's work. This document must not be subject to unauthorized reuse, that is, reuse without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's work. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims, including, but not limited to claims arising from or resulting from the performance of such services by other persons or entities, and any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

SELECTED REFERENCES

1. ENGEO; Geotechnical Exploration, Roselyn Estates II Property, Pleasanton, California; August 2, 2012; Project No. 4425.000.000.

2. ENGEO; Creek Bank Erosion Assessment, 1635-1777-1851 Rose Avenue, Pleasanton, California; September 18, 1998.

3. ENGEO; Hydraulic Evaluation and Bank Erosion Analysis of Arroyo Del Valle. Roselyn Lane Project PUD #38 TRACT 7534, Pleasanton California; March 2005.

4. United States Army Corps of Engineers; HEC-RAS Version 3.01, Hydraulic Reference Manual; Davis, California; 2003.

5. Ruggeri-Jensen-Azar, Inc.; Nolan Farms TR 7143; April 28, 2000; Job No. 981117EX.

6. Chow, V.T. Open Channel Hydraulics, McGraw Hill, New York, 1959.

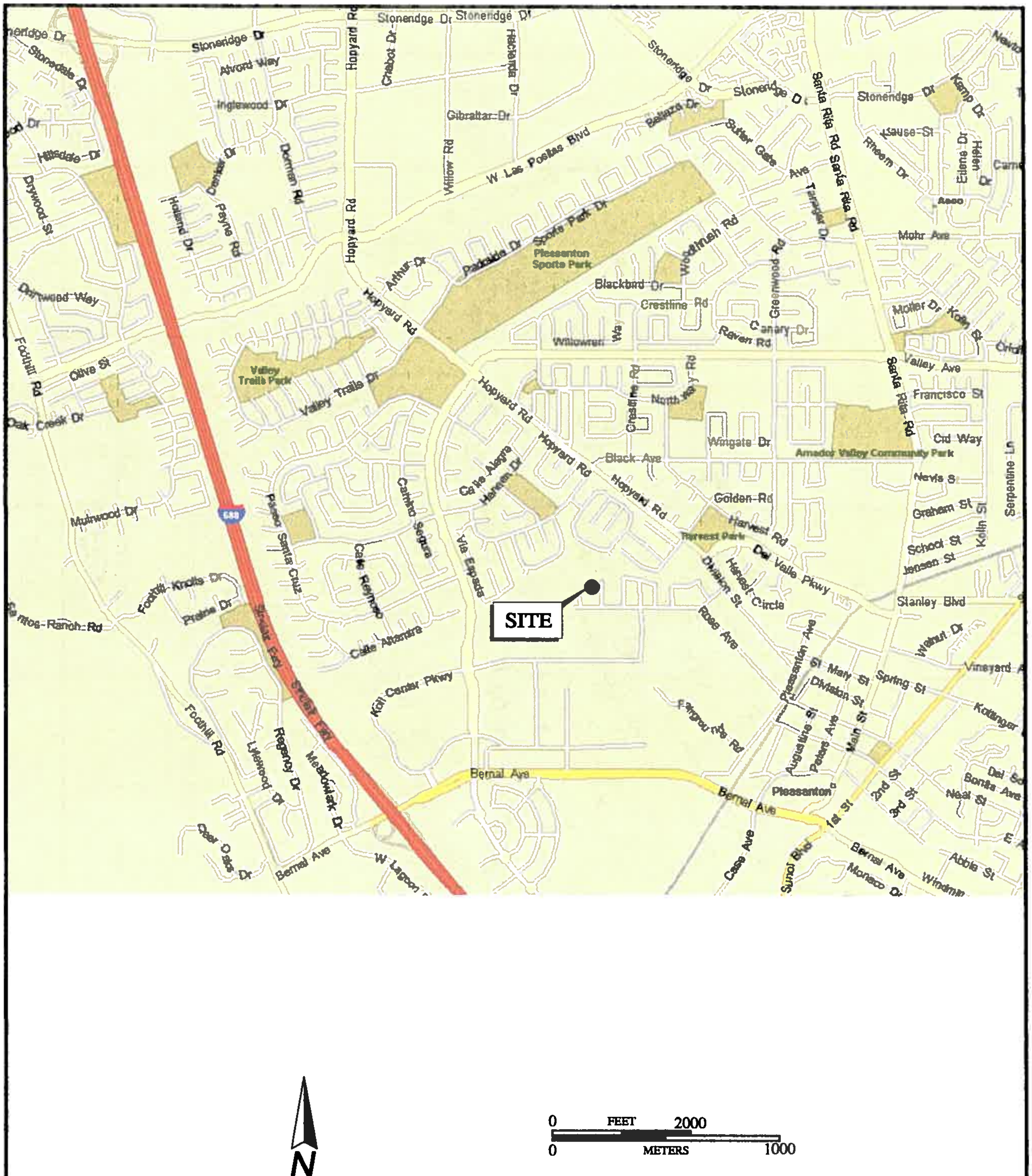
7. Federal Emergency Management Agency; FIRM Flood Insurance Rate Map, City of Pleasanton California, Community Panel No. 0600120004 D, Revised September 19, 1984.

8. United States Army Corps of Engineers, Hydraulic Stability of Natural Channels EM 1110-2-1418, 1994.

9. International Erosion Control Association. Design Procedures for Channel Protection and Streambank Stabilization, 1996.

10. California Geological Survey. Seismic Mapping Program Special Publication 117, Guidelines for Evaluation and Mitigating Seismic Hazards in California, March 1997.

LIST OF FIGURES

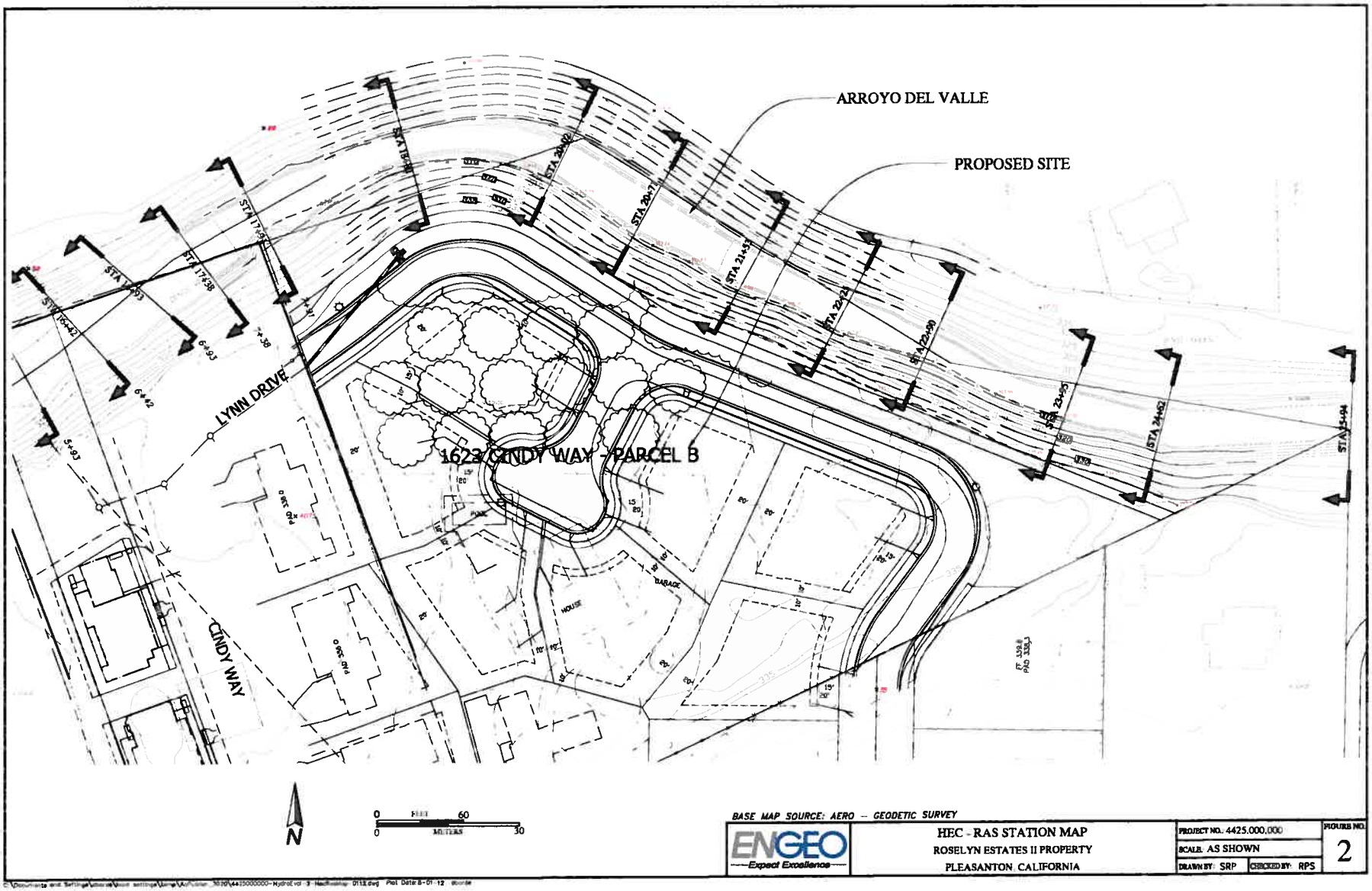


BASE MAP SOURCE: MS STREETS AND TRIPS

ENGEO Expect Excellence	VICINITY MAP ROSELYN ESTATES II PROPERTY PLEASANTON, CALIFORNIA	PROJECT NO.: 4425.000.000		FIGURE NO. 1
		SCALE: AS SHOWN		
		DRAWN BY: SRP	CHECKED BY: RPS	

G:\Drafting\DRAFTING2_Dwg\4425\000\HydroEval\4425000000-HydroEval-1-VicinityMap-0112.dwg Plot Date: 8-01-12 dborde

ORIGINAL FIGURE PRINTED IN COLOR



BASE MAP SOURCE: AERO -- GEODETIC SURVEY

ENGEO Expect Excellence

HEC - RAS STATION MAP
ROSELYN ESTATES II PROPERTY
PLEASANTON CALIFORNIA

PROJECT NO.: 4425.000.000
SCALE: AS SHOWN
DRAWN BY: SRP
CHECKED BY: RPS

FIGURE NO. 2

APPENDIX A

HEC-RAS Output

HEC-RAS Plan: FEMA WSE bou Locations: User Defined Profile: 100-yr

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	E.G. Elev	E.G. Slope	Vel Total	Flow Area	Vel Left	Shear Chan	Shear LOB
				(cfs)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft/s)	(lb/sq ft)	(lb/sq ft)
Arroyo Del Valle	1	2594	100-yr	4800.00	308.49	322.84	324.13	0.002554	6.85	871.09	3.91	2.12	1.11
Arroyo Del Valle	1	2462	100-yr	4800.00	308.09	322.52	323.79	0.002498	6.80	876.78	3.89	2.08	1.09
Arroyo Del Valle	1	2395	100-yr	4800.00	308.24	322.44	323.80	0.002229	6.55	702.01	3.31	1.88	0.84
Arroyo Del Valle	1	2290	100-yr	4800.00	307.91	322.02	323.34	0.002410	7.14	644.08	3.24	1.97	0.82
Arroyo Del Valle	1	2225	100-yr	4800.00	307.24	321.42	323.10	0.004316	7.41	620.38	5.41	3.66	2.08
Arroyo Del Valle	1	2153	100-yr	4800.00	307.74	321.73	322.70	0.001695	6.35	724.87	2.81	1.41	0.61
Arroyo Del Valle	1	2071	100-yr	4800.00	307.10	321.58	322.52	0.001654	6.10	753.95	2.70	1.42	0.57
Arroyo Del Valle	1	2002	100-yr	4800.00	307.24	321.35	322.39	0.001839	6.45	712.68	3.19	1.54	0.75
Arroyo Del Valle	1	1881	100-yr	4800.00	308.87	320.56	322.08	0.003155	6.36	550.25	3.64	2.19	1.05
Arroyo Del Valle	1	1791.9	100-yr	4800.00	308.45	320.71	321.67	0.002051	6.88	698.24	1.82	1.40	0.33
Arroyo Del Valle	1	1738.72	100-yr	4800.00	305.59	320.27	321.52	0.002633	6.62	694.42	4.40	2.31	1.33

HEC-RAS Plan: FEMA WSE bou Locations: User Defined Profile: 100-yr

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	E.G. Elev	E.G. Slope	Vel Total	Flow Area	Vel Left	Shear Chan	Shear LOB
				(cfs)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft/s)	(lb/sq ft)	(lb/sq ft)
Arroyo Del Valle	1	2594	100-yr	7000.00	308.49	326.29	327.66	0.002442	7.45	939.64	4.60	2.53	1.40
Arroyo Del Valle	1	2462	100-yr	7000.00	308.09	325.98	327.53	0.002390	7.39	947.28	4.57	2.49	1.38
Arroyo Del Valle	1	2365	100-yr	7000.00	308.24	325.89	327.35	0.002162	7.20	972.64	3.92	2.30	1.07
Arroyo Del Valle	1	2290	100-yr	7000.00	307.91	325.43	327.09	0.002383	7.74	904.04	3.78	2.43	1.04
Arroyo Del Valle	1	2225	100-yr	7000.00	307.24	324.91	326.86	0.003990	7.94	681.96	6.02	4.23	2.37
Arroyo Del Valle	1	2153	100-yr	7000.00	307.74	325.22	326.47	0.001689	7.02	996.59	3.33	1.76	0.79
Arroyo Del Valle	1	2071	100-yr	7000.00	307.10	325.06	326.29	0.001679	6.91	1027.35	3.15	1.79	0.72
Arroyo Del Valle	1	2002	100-yr	7000.00	307.24	324.83	326.16	0.001816	7.11	985.05	3.79	1.91	0.97
Arroyo Del Valle	1	1881	100-yr	7000.00	308.87	323.98	325.83	0.002991	9.04	774.47	4.32	2.62	1.34
Arroyo Del Valle	1	1791.9	100-yr	7000.00	308.45	324.22	325.42	0.001848	7.44	941.33	2.42	1.64	0.50
Arroyo Del Valle	1	1738.72	100-yr	7000.00	305.59	323.62	325.26	0.002714	7.47	937.58	5.09	2.95	1.67

Project No.
4425.000.000

January 16, 2013
Revised January 17, 2013

Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

PUD-94
EXHIBIT B

Subject: Roselyn Estates II Property
1623 Cindy Way – Parcel B
Pleasanton, California

RESPONSE TO COMMENTS FROM THE CITY OF PLEASANTON

References:

1. ENGEO; Geotechnical Exploration Roselyn Estates II Property, 1623 Cindy Way - Parcel B, Pleasanton, California; Project No. 4425.000.000; August 1, 2012.
2. ENGEO; Hydraulic Evaluation and Bank Erosion Analysis of Arroyo Del Valle, Roselyn Estates II Property, 1623 Cindy Way - Parcel B, Pleasanton, California; Project No. 4425.000.000; August 1, 2012.
3. DeBolt Civil Engineering; Roselyn Estates Phase II Project, P.U.D. #94 ~ Tract 0000, City of Pleasanton, Alameda County, California; Job No. 06136; 8/15/2012.

Dear Mr. Jansen:

This letter is provided in response to comments by the City of Pleasanton regarding the Roselyn Estates II Property in Pleasanton, California. ENGEO has completed geotechnical and hydraulic studies at the site and provided the results of those studies in References 1 and 2 listed above. The City has asked for a response to the following two points, our responses are provided below:

1. The project Plans, Reference 3, show a bioswale/storm water retention area between the future extension of Lynn Drive and the future trail. The bioswale is planned to be approximately 12-foot-wide. The City asked for ENGEO to comment that the report findings specifically take into account the future existence of the bioswale/stormwater retention area and where in the report that it is accounted for.

   - In our Geotechnical Exploration Report for Roselyn Estates, Reference 1, we discussed the proposed bioswale/stormwater retention area in section 1.3 Proposed Development and section 5.1 Bioretention Area. In section 5.1 we discuss that infiltration of water could adversely affect the stability of the creek bank. We recommend an impermeable membrane should underlay the bioretention area to limit water infiltration into the underlying soils.

As recommended in our reports (References 1 and 2), with the currently planned (Reference 3) setback for the future extension of the creekside street and placement of the bioswale/storm water retention area between the future extension of the creekside street and the future trail, geogrid reinforcement will be needed along the edge of the proposed roadway. Details for design and construction of the geogrid reinforcement are included in Reference 1 (Figure 6).

2. Recently the City noted that you performed some creek bank maintenance along a roughly 100 foot long portion of the bank starting approximately 75 feet from the west property boundary at the current end of Lynn Drive. The City requests that we comment on whether the maintenance activities have affected our assumptions or recommendations in our Geotechnical Report, Reference 1.

   - ENGEO conducted a site visit on January 15, 2013 to view the creek bank maintenance activities. From our observations and on-site discussion with you, maintenance activities consisted of: removal of vegetation, removal of a fence at the top of slope, placement of soil cover over pre-existing concrete debris on the creek bank, hydroseeding of the newly placed soil, covering of the disturbed area in erosion control matting and waddles with a silt fence at the base of the disturbed area. Additionally concrete rubble was placed in voids under a large tree near the top of slope and covered with soil; however, at the time of our site visit the rubble and soil had been removed at the request of the City of Pleasanton. The top of slope was not significantly altered from the time of our geotechnical Exploration and the toe of slope appeared to be undisturbed.

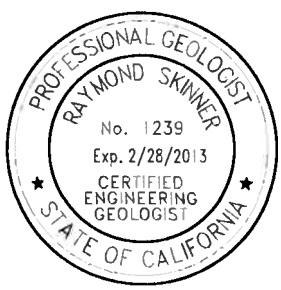
     From a geotechnical perspective, the activities do not appear to affect our assumptions or recommendations for the slope stability and creek bank/slope setbacks. The creek bank/slope setbacks are calculated from the toe of the creek bank to the top of slope at a horizontal:vertical projection. The toe of the creek bank does not appear to have been altered.

If you have any questions or comments regarding this letter, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

Jennifer R. Botelho
Project Geologist



Raymond P. Skinner, CEG
Principal

Cc: Mr. Al Baez - City of Pleasanton

Project No.
4425.000.000

January 30, 2012

Mr. Lynn Jansen
Lynden Homes
PO Box 417
Diablo, CA 94528

Subject: Jones Property
1623 Cindy Way
Pleasanton, California

PHASE II ENVIRONMENTAL SITE ASSESSMENT

Reference: Diablo Green Consulting; Draft Phase I Environmental Site Assessment, Jones Residence, 1623 Cindy Way, Pleasanton, California; June 3, 2011; Project No. 11.10103.0001

Dear Mr. Jansen:

ENGEO is pleased to present this report summarizing phase II environmental site assessment activities at the above referenced project located in Pleasanton, California. The purpose of our assessment was to evaluate potential environmental conditions associated with the property (Property).

The roughly 4-acre Property is located at 1623 Cindy Way in Pleasanton, California. The Property contained a residence with several detached buildings and a pool with associated flat work surrounded by a small orchard on the northwest portion of the Property. The east portion of the Property is vacant. Recently a residence was moved from the center of the Property to a lot with driveway access from Cindy Way. We understand that the Property will be redeveloped with approximately seven single-family residential lots.

SCOPE OF SERVICES

Our phase II assessment scope was developed to assess the potential presence of organochlorine pesticides and pesticide-related materials that may have been applied during past agricultural activities at the Property. To assess this potential condition, we performed the following tasks:

- A total of four samples were recovered from depths of 3 to 9 inches below the ground surface (Figure 1).

- Samples were collected using hand equipment in clean stainless steel sample sleeves. The sample sleeves were sealed using Teflon® sheets secured by tight-fitting plastic end caps. Upon collection of samples, a sample label consisting of a unique sample number, sample location, time/date collected, lab analysis, and the sampler's identification was placed on each sample. The soil samples were placed in an ice-cooled chest and submitted under documented chain-of-custody to TestAmerica Laboratories Inc. in San Ramon, California.

- The shallow soil samples were combined into one 4-point composite sample. The composite soil samples were analyzed organochlorine pesticides (EPA Method 8081). Additionally, the four samples were analyzed on a discrete basis for the presence of lead and arsenic (EPA Method 6010B).

SOIL SAMPLING RESULTS

The results of the soil sampling program are presented below in Table 1, and the laboratory analysis report is presented in its entirety in Appendix A. Sample EB-Composite exhibited trace detectable organochlorine pesticide concentrations; 4,4'-DDT was detected at a concentration of 3.1 micrograms per kilogram (µg/kg), and 4,4'-DDE was detected at a concentration of 3.0 µg/kg. The reported pesticide concentrations are well below the CAL-EPA California Human Health Screening Level (CHHSL) considering a residential land use. No other organochlorine pesticide concentrations were detected in the composite sample. Lead and arsenic were detected in all four discrete samples. Detected lead concentrations were below the respective CHHSL and were within the expected range of background concentrations in the Pleasanton area. Although the detected arsenic concentrations exceed the respective CHHSL, these concentrations are also within the expected range of background concentrations in the Pleasanton area.

TABLE 1
Summary of Laboratory Analysis

Sample	Lead (mg/kg)	Arsenic (mg/kg)	Organochlorine Pesticides (µg/kg)
EB-1	12	6.8	N/A
EB-2	12	8.7	N/A
EB-3	11	7.6	N/A
EB-4	27	6.3	N/A
EB-Composite	N/A	N/A	4,4'-DDT = 3.1; 4,4'-DDE = 3.0 OTHERS ND

Based on the findings of this assessment, the soils at the Property do not appear to have been adversely impacted by the use of organochlorine pesticides or metals-containing pesticides. Based on the findings of this assessment, we do not recommend additional studies at this time. A lead-based paint and asbestos pre-demolition survey has recently been completed for structures at the Property; the results will be transmitted to you under separate cover.

If you have any questions regarding the contents of this document, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated

Jeffrey A. Adams, PhD, PE, REA I

Shawn Munger, CHG, REA II

Attachments: Figure 1 – Site Plan
Appendix A – Laboratory Analysis Report

FIGURE

Figure 1 – Site Plan

EXPLANATION

EB-4 APPROXIMATE LOCATION OF ENVIRONMENTAL BORING

ENGEO Expect Excellence

SITE PLAN

JONES PROPERTY - ROSELYN ESTATES II

PLEASANTON, CALIFORNIA

PROJECT NO.: 4425.000.000		FIGURE NO. 1
SCALE: AS SHOWN		
DRAWN BY: SRP	CHECKED BY: JA	

ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX A

Laboratory Analysis Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica San Francisco
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-39001-1
Client Project/Site: Jones Property

For:
Engeo, Inc.
2010 Crow Canyon Place
Suite 250
San Ramon, California 94583

Attn: Mr. Jeff Adams

Authorized for release by:
12/9/2011 3:56:00 PM

Afsaneh Salimpour
Project Manager I
afsaneh.salimpour@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Client Sample ID: EB-1

Lab Sample ID: 720-39001-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	12		1.8		mg/Kg	4		6010B	Total/NA
Arsenic	6.8		3.7		mg/Kg	4		6010B	Total/NA

Client Sample ID: EB-2

Lab Sample ID: 720-39001-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	12		1.9		mg/Kg	4		6010B	Total/NA
Arsenic	8.7		3.8		mg/Kg	4		6010B	Total/NA

Client Sample ID: EB-3

Lab Sample ID: 720-39001-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	11		1.9		mg/Kg	4		6010B	Total/NA
Arsenic	7.6		3.8		mg/Kg	4		6010B	Total/NA

Client Sample ID: EB-4

Lab Sample ID: 720-39001-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	27		1.9		mg/Kg	4		6010B	Total/NA
Arsenic	6.3		3.8		mg/Kg	4		6010B	Total/NA

Client Sample ID: EB-COMPOSITE

Lab Sample ID: 720-39001-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
4,4'-DDT	3.1		2.0		ug/Kg	1		8081A	Total/NA
4,4'-DDE	3.0		2.0		ug/Kg	1		8081A	Total/NA

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Method: 8081A - Organochlorine Pesticides (GC)

Client Sample ID: EB-COMPOSITE
Date Collected: 12/01/11 14:00
Date Received: 12/01/11 17:05

Lab Sample ID: 720-39001-5
Matrix: Solid

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Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Dieldrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endrin aldehyde	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endrin ketone	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Heptachlor	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Heptachlor epoxide	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
4,4'-DDT	3.1		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
4,4'-DDE	3.0		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
4,4'-DDD	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endosulfan I	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endosulfan II	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
alpha-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
beta-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
gamma-BHC (Lindane)	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
delta-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Endosulfan sulfate	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Methoxychlor	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Toxaphene	ND		40		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
Chlordane (technical)	ND		40		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
alpha-Chlordane	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1
gamma-Chlordane	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 17:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*34 - 110*	*12/07/11 16:42*	*12/08/11 17:51*	*1*
DCB Decachlorobiphenyl	*76*		*21 - 136*	*12/07/11 16:42*	*12/08/11 17:51*	*1*

Method: 6010B - Metals (ICP)

Client Sample ID: EB-1
Date Collected: 12/01/11 14:00
Date Received: 12/01/11 17:05

Lab Sample ID: 720-39001-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	12		1.8		mg/Kg		12/07/11 10:18	12/07/11 17:34	4
Arsenic	6.8		3.7		mg/Kg		12/07/11 10:18	12/07/11 17:34	4

Client Sample ID: EB-2
Date Collected: 12/01/11 14:15
Date Received: 12/01/11 17:05

Lab Sample ID: 720-39001-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	12		1.9		mg/Kg		12/07/11 10:18	12/07/11 17:42	4
Arsenic	8.7		3.8		mg/Kg		12/07/11 10:18	12/07/11 17:42	4

Client Sample ID: EB-3
Date Collected: 12/01/11 14:30
Date Received: 12/01/11 17:05

Lab Sample ID: 720-39001-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	11		1.9		mg/Kg		12/07/11 10:18	12/07/11 17:47	4
Arsenic	7.6		3.8		mg/Kg		12/07/11 10:18	12/07/11 17:47	4

Client Sample ID: EB-4
Date Collected: 12/01/11 14:45
Date Received: 12/01/11 17:05

Lab Sample ID: 720-39001-4
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	27		1.9		mg/Kg		12/07/11 10:18	12/07/11 17:51	4
Arsenic	6.3		3.8		mg/Kg		12/07/11 10:18	12/07/11 17:51	4

Method: 8081A - Organochlorine Pesticides (GC)

Lab Sample ID: MB 720-104124/1-A
Matrix: Solid
Analysis Batch: 104179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 104124

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Dieldrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endrin aldehyde	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endrin	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endrin ketone	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Heptachlor	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Heptachlor epoxide	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
4,4'-DDT	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
4,4'-DDE	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
4,4'-DDD	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endosulfan I	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endosulfan II	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
alpha-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
beta-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
gamma-BHC (Lindane)	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
delta-BHC	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Endosulfan sulfate	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Methoxychlor	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Toxaphene	ND		39		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
Chlordane (technical)	ND		39		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
alpha-Chlordane	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1
gamma-Chlordane	ND		2.0		ug/Kg		12/07/11 16:42	12/08/11 16:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*74*		*34 - 110*	*12/07/11 16:42*	*12/08/11 16:27*	*1*
DCB Decachlorobiphenyl	*89*		*21 - 136*	*12/07/11 16:42*	*12/08/11 16:27*	*1*

Lab Sample ID: LCS 720-104124/2-A
Matrix: Solid
Analysis Batch: 104179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 104124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	16.6	11.6		ug/Kg		70	54 - 120
Dieldrin	16.6	13.2		ug/Kg		79	59 - 120
Endrin aldehyde	16.6	13.3		ug/Kg		80	40 - 120
Endrin	16.6	13.3		ug/Kg		80	53 - 120
Endrin ketone	16.6	15.1		ug/Kg		91	40 - 120
Heptachlor	16.6	11.8		ug/Kg		71	54 - 120
Heptachlor epoxide	16.6	12.9		ug/Kg		78	40 - 120
4,4'-DDT	16.6	12.4		ug/Kg		75	51 - 120
4,4'-DDE	16.6	13.1		ug/Kg		79	40 - 120
4,4'-DDD	16.6	13.1		ug/Kg		79	40 - 120
Endosulfan I	16.6	13.2		ug/Kg		80	40 - 120
Endosulfan II	16.6	14.3		ug/Kg		86	40 - 120
alpha-BHC	16.6	11.8		ug/Kg		71	40 - 120
beta-BHC	16.6	15.8		ug/Kg		95	40 - 120
gamma-BHC (Lindane)	16.6	11.9		ug/Kg		71	50 - 98
delta-BHC	16.6	13.0		ug/Kg		79	40 - 120
Endosulfan sulfate	16.6	14.8		ug/Kg		88	40 - 120

Method: 8081A - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCS 720-104124/2-A
Matrix: Solid
Analysis Batch: 104179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 104124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methoxychlor	16.6	13.2		ug/Kg		80	40 - 120
alpha-Chlordane	16.6	13.4		ug/Kg		81	40 - 120
gamma-Chlordane	16.6	13.1		ug/Kg		79	40 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*74*		*34 - 110*
DCB Decachlorobiphenyl	*89*		*21 - 136*

Lab Sample ID: LCSD 720-104124/3-A
Matrix: Solid
Analysis Batch: 104179

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 104124

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	16.3	12.2		ug/Kg		75	54 - 120	5	20
Dieldrin	16.3	13.0		ug/Kg		80	59 - 120	1	20
Endrin aldehyde	16.3	13.4		ug/Kg		82	40 - 120	1	20
Endrin	16.3	13.1		ug/Kg		81	53 - 120	1	20
Endrin ketone	16.3	14.9		ug/Kg		92	40 - 120	1	20
Heptachlor	16.3	12.4		ug/Kg		76	54 - 120	5	20
Heptachlor epoxide	16.3	12.9		ug/Kg		79	40 - 120	0	20
4,4'-DDT	16.3	12.0		ug/Kg		74	51 - 120	3	20
4,4'-DDE	16.3	12.8		ug/Kg		78	40 - 120	3	20
4,4'-DDD	16.3	12.9		ug/Kg		79	40 - 120	1	20
Endosulfan I	16.3	13.2		ug/Kg		81	40 - 120	0	20
Endosulfan II	16.3	14.2		ug/Kg		87	40 - 120	0	35
alpha-BHC	16.3	12.4		ug/Kg		78	40 - 120	5	20
beta-BHC	16.3	15.9		ug/Kg		97	40 - 120	1	20
gamma-BHC (Lindane)	16.3	12.3		ug/Kg		75	50 - 98	3	20
delta-BHC	16.3	13.1		ug/Kg		81	40 - 120	1	20
Endosulfan sulfate	16.3	14.3		ug/Kg		88	40 - 120	2	20
Methoxychlor	16.3	12.6		ug/Kg		78	40 - 120	5	20
alpha-Chlordane	16.3	13.3		ug/Kg		82	40 - 120	1	20
gamma-Chlordane	16.3	13.1		ug/Kg		80	40 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*80*		*34 - 110*
DCB Decachlorobiphenyl	*86*		*21 - 136*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 720-104091/1-A
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 104091

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.50		mg/Kg		12/07/11 10:18	12/07/11 17:13	1
Arsenic	ND		1.0		mg/Kg		12/07/11 10:18	12/07/11 17:13	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 720-104091/2-A
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 104091

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	48.9		mg/Kg		98	80 - 120
Arsenic	50.0	48.4		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 720-104091/3-A
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 104091

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	49.4		mg/Kg		99	80 - 120	1	20
Arsenic	50.0	48.6		mg/Kg		97	80 - 120	1	20

Lab Sample ID: LCSSRM 720-104091/13-A
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 104091

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	181	156		mg/Kg		86	62 - 113
Arsenic	79.4	74.5		mg/Kg		94	69 - 119

Lab Sample ID: 720-39001-1 MS
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: EB-1
Prep Type: Total/NA
Prep Batch: 104091

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	12		45.5	50.1		mg/Kg		85	75 - 125
Arsenic	6.8		45.5	46.4		mg/Kg		87	75 - 125

Lab Sample ID: 720-39001-1 MSD
Matrix: Solid
Analysis Batch: 104141

Client Sample ID: EB-1
Prep Type: Total/NA
Prep Batch: 104091

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	12		45.5	53.4		mg/Kg		92	75 - 125	6	20
Arsenic	6.8		45.5	49.2		mg/Kg		93	75 - 125	6	20

QC Association Summary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

GC Semi VOA

Prep Batch: 104124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-39001-5	EB-COMPOSITE	Total/NA	Solid	3546	
LCS 720-104124/2-A	Lab Control Sample	Total/NA	Solid	3546	
LCSD 720-104124/3-A	Lab Control Sample Dup	Total/NA	Solid	3546	
MB 720-104124/1-A	Method Blank	Total/NA	Solid	3546	

Analysis Batch: 104179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-39001-5	EB-COMPOSITE	Total/NA	Solid	8081A	104124
LCS 720-104124/2-A	Lab Control Sample	Total/NA	Solid	8081A	104124
LCSD 720-104124/3-A	Lab Control Sample Dup	Total/NA	Solid	8081A	104124
MB 720-104124/1-A	Method Blank	Total/NA	Solid	8081A	104124

Metals

Prep Batch: 104091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-39001-1	EB-1	Total/NA	Solid	3050B	
720-39001-1 MS	EB-1	Total/NA	Solid	3050B	
720-39001-1 MSD	EB-1	Total/NA	Solid	3050B	
720-39001-2	EB-2	Total/NA	Solid	3050B	
720-39001-3	EB-3	Total/NA	Solid	3050B	
720-39001-4	EB-4	Total/NA	Solid	3050B	
LCS 720-104091/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 720-104091/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
LCSSRM 720-104091/13-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 720-104091/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 104141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-39001-1	EB-1	Total/NA	Solid	6010B	104091
720-39001-1 MS	EB-1	Total/NA	Solid	6010B	104091
720-39001-1 MSD	EB-1	Total/NA	Solid	6010B	104091
720-39001-2	EB-2	Total/NA	Solid	6010B	104091
720-39001-3	EB-3	Total/NA	Solid	6010B	104091
720-39001-4	EB-4	Total/NA	Solid	6010B	104091
LCS 720-104091/2-A	Lab Control Sample	Total/NA	Solid	6010B	104091
LCSD 720-104091/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	104091
LCSSRM 720-104091/13-A	Lab Control Sample	Total/NA	Solid	6010B	104091
MB 720-104091/1-A	Method Blank	Total/NA	Solid	6010B	104091

Lab Chronicle

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Client Sample ID: EB-1

Lab Sample ID: 720-39001-1
Matrix: Solid
Date Collected: 12/01/11 14:00
Date Received: 12/01/11 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			104091	12/07/11 10:18	JR	TAL SF
Total/NA	Analysis	6010B		4	104141	12/07/11 17:34	BA	TAL SF

Client Sample ID: EB-2

Lab Sample ID: 720-39001-2
Matrix: Solid
Date Collected: 12/01/11 14:15
Date Received: 12/01/11 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			104091	12/07/11 10:18	JR	TAL SF
Total/NA	Analysis	6010B		4	104141	12/07/11 17:42	BA	TAL SF

Client Sample ID: EB-3

Lab Sample ID: 720-39001-3
Matrix: Solid
Date Collected: 12/01/11 14:30
Date Received: 12/01/11 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			104091	12/07/11 10:18	JR	TAL SF
Total/NA	Analysis	6010B		4	104141	12/07/11 17:47	BA	TAL SF

Client Sample ID: EB-4

Lab Sample ID: 720-39001-4
Matrix: Solid
Date Collected: 12/01/11 14:45
Date Received: 12/01/11 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			104091	12/07/11 10:18	JR	TAL SF
Total/NA	Analysis	6010B		4	104141	12/07/11 17:51	BA	TAL SF

Client Sample ID: EB-COMPOSITE

Lab Sample ID: 720-39001-5
Matrix: Solid
Date Collected: 12/01/11 14:00
Date Received: 12/01/11 17:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			104124	12/07/11 16:42	NP	TAL SF
Total/NA	Analysis	8081A		1	104179	12/08/11 17:51	EC	TAL SF

Laboratory References:

TAL SF = TestAmerica San Francisco, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica San Francisco	California	State Program	9	2496

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Method	Method Description	Protocol	Laboratory
8081A	Organochlorine Pesticides (GC)	SW846	TAL SF
6010B	Metals (ICP)	SW846	TAL SF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SF = TestAmerica San Francisco, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: Engeo, Inc.
Project/Site: Jones Property

TestAmerica Job ID: 720-39001-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-39001-1	EB-1	Solid	12/01/11 14:00	12/01/11 17:05
720-39001-2	EB-2	Solid	12/01/11 14:15	12/01/11 17:05
720-39001-3	EB-3	Solid	12/01/11 14:30	12/01/11 17:05
720-39001-4	EB-4	Solid	12/01/11 14:45	12/01/11 17:05
720-39001-5	EB-COMPOSITE	Solid	12/01/11 14:00	12/01/11 17:05

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

12

720-39001

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
135192
TestAmerica Laboratories, Inc.

12/9/2011

Client Contact	Project Manager: Steve Harris	Site Contact: Jen Botelho	Date: 11-30-11	COC No:
ENGEO Incorporated Jeff Adams	Tel/Fax: same	Lab Contact:	Carrier:	____ of ____ COCs
2010 Crow Canyon Place, Suite #250	**Analysis Turnaround Time**			Job No.
San Ramon, CA 94583	Calendar (C) or Work Days (W) 5			
925-866-9000 Phone	TAT if different from Below ____			SDG No.
888-279-2698 FAX	☐ 2 weeks			
Project Name: Jones Property	☐ 1 week			
Site: Pleasanton	☐ 2 days			
P O # 4425.000.000	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample (Y/N)	arsenic and lead (EPA 6010B)	organochlorine pesticides (EPA 8081)	Sample Specific Notes:
EB-1 12/1/11	########	2:00	soil	soil	1		1	1	One four point composite organochlorine pesticides (EPA 8081)
EB-2 12/1/11	~~11/30/11~~	2:15	soil	soil	1		1		
EB-3 12/1/11	~~11/30/11~~	2:30	soil	soil	1		1		
EB-4 12/1/11	~~11/30/11~~	2:45	soil	soil	1		1		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ■

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements & Comments:

10.5° c4/hcs

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
J. Botelho via Bacardi	ENGEO	12/1/11 5:05	Jason Mullin	TAL Amn	12-01-11 1705
Relinquished by	Company	Date/Time	Received by:	Company	Date/Time:
Relinquished by	Company	Date/Time	Received by:	Company	Date/Time:

Form No. CA-C-WI-002, dated 04/07/2011

Login Sample Receipt Checklist

Client: Engeo, Inc.

Job Number: 720-39001-1

Login Number: 39001
List Number: 1
Creator: Mullen, Joan

List Source: TestAmerica San Francisco

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	10.8 <4HRS
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

Project No.
4425.000.000

March 5, 2013
Revised March 6, 2013

Roselyn Estates, LLC
% Mr. Lynn Jansen
Lynden Homes
P.O. Box 417
Diablo, CA 94528-0417

Subject: Roselyn Estates II Property
1623 Cindy Way – Parcel B
Pleasanton, California

RESPONSE TO PEER REVIEW COMMENTS

References:

1. ENGEO; Geotechnical Exploration Roselyn Estates II Property, 1623 Cindy Way - Parcel B, Pleasanton, California; Project No. 4425.000.000; August 1, 2012.
2. ENGEO; Hydraulic Evaluation and Bank Erosion Analysis of Arroyo Del Valle, Roselyn Estates II Property, 1623 Cindy Way - Parcel B, Pleasanton, California; Project No. 4425.000.000; August 1, 2012.
3. DeBolt Civil Engineering; Roselyn Estates Phase II Project, P.U.D. #94 ~ Tract 0000, City of Pleasanton, Alameda County, California; Job No. 06136; 8/15/2012.
4. Alan Kropp and Associates, Roselyn Estates II, e-mail transmittal of peer review comments, March 1, 2013.

Dear Mr. Jansen:

This letter is provided in response to peer review comments by Alan Kropp and Associates in an email dated March 2, 2013, regarding the Roselyn Estates II Property in Pleasanton, California. ENGEO has completed geotechnical and hydraulic studies at the site and provided the results of those studies in References 1 and 2 listed above. The City of Pleasanton has asked for our response to the three peer review comments; the comments and our responses are provided below:

Comment 1 - Bio-Remediation Facility: *"Engeo has indicated the bio-remediation area should be underlain by a geomembrane to minimize the introduction of water into the top of the slope. I assume this means the geomembrane should extent under the entire width of the swale area and wrap up at the edges to reach the ground surface. To make this*

geomembrane liner impervious, it will have to be welded at the seams, much like the sealing that is done below a landfill- is that correct? Does the extent of the geomembrane include the entirety of the triangular area at the east end of the property? With the equivalent of a buried bathtub being created, and a limited orifice for discharging the collected water, what is the likelihood the swale will fill with water because of the slow discharge and overflow outside the swale area?

ENGEO Response 1: In our Geotechnical Exploration report for Roselyn Estates, Reference 1, we discussed the proposed bioswale/stormwater retention area in Section 1.3 Proposed Development and Section 5.1 Bioretention Area. In Section 5.1 we discuss that infiltration of water could adversely affect the stability of the creek bank. We recommend an impermeable membrane should underlay the bioswale along Lynn Drive area starting from the edge of the path pavement, underlying the Class II Permeable material, and then extending to the curb opposite of the path. Soil may be placed on the membrane to facilitate planting. The intent of the membrane is to limit water infiltration into the underlying soils. In the triangular shaped area of the bioretention area located in the northeastern part of the project site, the impermeable membrane should be placed underlying areas proposed for bio-treatment soil mix (BSM) and Class II Permeable material. Other areas within the triangular area may omit the membrane if the ground surface is sloped a minimum of 5 percent to a drainage facility and ponding is not permitted, otherwise, the impermeable membrane should be placed. In our experience, overlaying of the seams of the membrane by at least 1 foot will substantially limit the volume of water leaking into the subgrade. The intention of the membrane is to limit the volume of water infiltrating within the bioswale area, not to create a watertight barrier.
Water should only be allowed to exit the bioswale/bioretention area by evaporation or controlled discharge through a designated orifice. It is our understanding the sheet flow from Calico Drive and Lynn Drive, in addition to an existing storm drain line on Lynn Drive north of Lot 2, is planned to discharge stormwater into the Biorention swale. The civil engineer should design the bioswale/bioretention area such that the bioswale/bioretention area has sufficient volume to avoid potential overflow outside the bioswale/bioretention area. In accordance with current regulations, the facility should be designed to drain completely within 72 hours.

Comment 2 - Water Level in the Slope: "*The slope stability analyses indicates the water level within the slope was assumed to be at Elevation 308, the toe of the slope, for the computations. The flooding analyses indicates the water could build up to Elevation 322-327 during a 100-year event. Given the moderately permeable layers of sands and silts present along the creek, it is likely the water surface within the slope along the creek could build up to much higher than Elevation 308. Engeo should perform a sensitivity study to illustrate the degradation in factor of safety with raising of water levels within the slope, and then comment on the highest reasonable levels of build-up they expect. Engeo should then recommend any needed adjustments in their remedial design.*"

ENGEO Response 2: In our Geotechnical Exploration report for Roselyn Estates, Reference 1, we discussed the effect of rapid drawdown and stated: "The saturation and dissipation of pore-water pressure in the slope is largely influenced by the permeability of the soil. A detailed hydrologic study was performed in parallel with this geotechnical study. From this study, it is estimated that the flood elevation for the 100-year event will have a relatively short duration. Due to the creek bank consisting of predominantly stiff to hard fine-grained soil, and the short duration of the flood, it is our opinion that the potential of the slope to saturate from a flooding event is low..." In addition, during our exploration in December 2011, groundwater was encountered at a depth of about 35 feet below grade at the two borings near the slope face. In comparison, the bottom of the creek is approximately 27 to 30 feet below the top of bank.

To evaluate the degradation in the factor of safety with raising the water levels within the slope, we modeled the water level within the slope for all four cross-sections at the highest elevation of 327 feet. The analysis indicates that the factor of safety is one or greater for the reinforced slope. It is our opinion that a factor of safety of one or greater is satisfactory given that the likelihood of the flood event is low with a short duration, in combination with the permeability of the soil that would not facilitate much infiltration for the short duration event. Table 1 below shows a comparison of the factor of safety with the water level modeled at the base of the creek bank compared to the factor of safety with the water level modeled at elevation 327 feet. The individual slope stability runs are included in the attachment. Based on our stability analyses, we do not recommend changes to the reinforcement recommendations.

TABLE 1

CALCULATED FACTOR OF SAFETY		
Section	Water Level Base of Creek Bank (Reference 1)	Water Level at Elevation 327 feet
A to A'	1.6	1.0
B to B'	1.5	1.0
C to C'	1.6	1.1
D to D'	1.6	1.1

Comment 3 - Geogrid Reinforcement: *"The current design appears to indicate the geogrid below the roadway will end immediately north of the proposed water main in the street. Engeo should confirm this location (and note if any further modification is needed based on Item 2 above), and indicate whether in the unlikely event the geogrid is severed it must be spliced back together to meet the project stability requirements."*

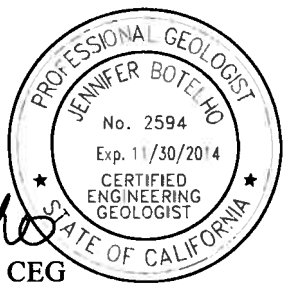
ENGEO Response 3: As noted in our response to Comment 2, it is our opinion that modification to the geogrid configuration is not needed.

From our discussions with the client regarding the planned location of utilities, it is our understanding that utilities will not be placed within the designated geogrid area, with exception of the stormdrain line on Lynn Drive north of Lot 2 that is planned to discharge stormwater into the biorention swale. The proposed stormdrain should be located above the top layer of geogrid. In general, utilities should be place above the geogrid so that in the event that utilities need to be serviced, the geogrid is not damaged. The georgrids can and should be repaired per manufacturer specifications if damaged somehow in future. .

If you have any questions or comments regarding this letter, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated



Randy Hildebrant, PE

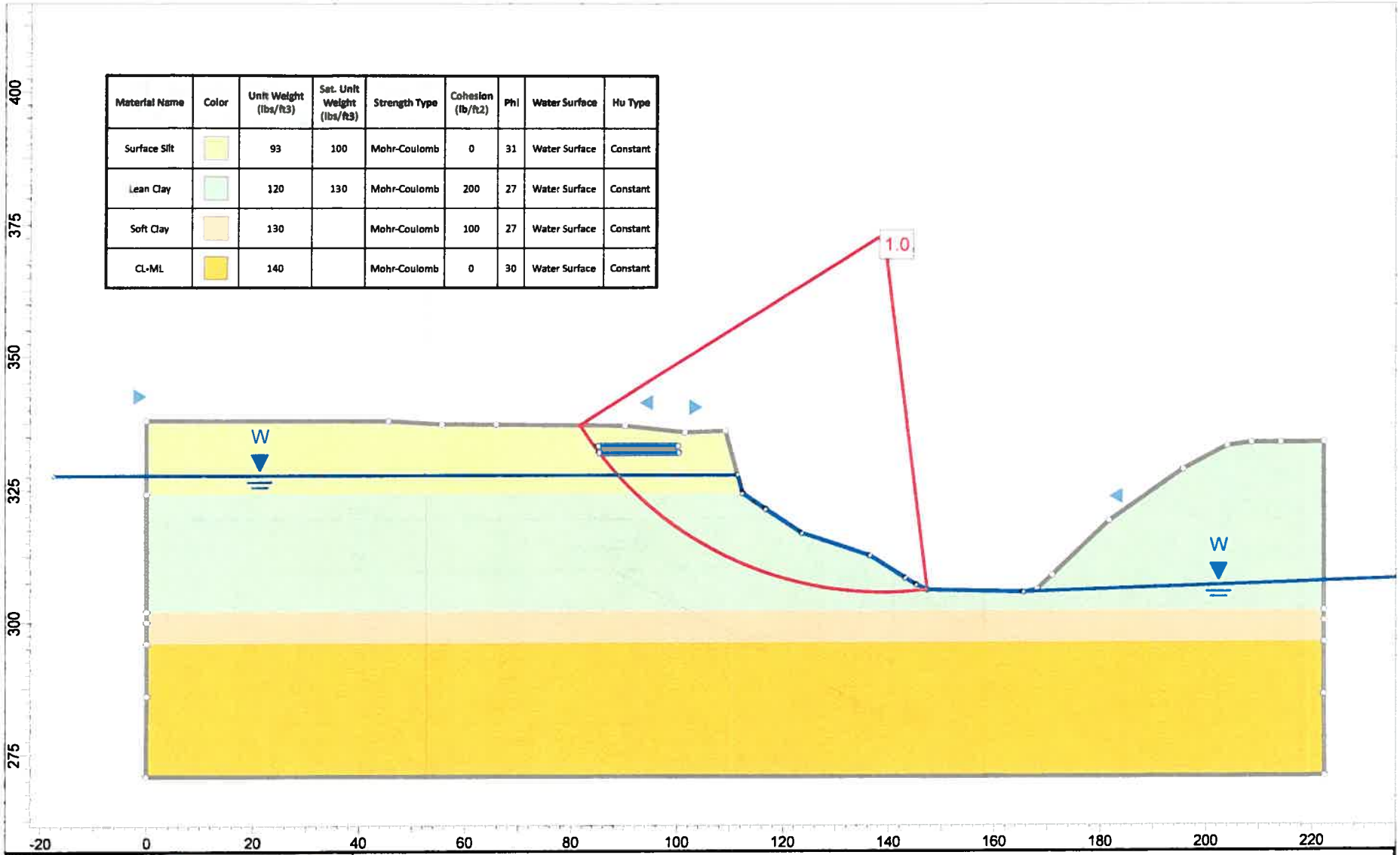
Jennifer R. Botelho, CEG

Raymond P. Skinner, CEG
rh/jrb/rps/jf

Attachments: Slope Stability Analysis Output

cc: Mr. Al Baez - City of Pleasanton

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type
Surface Silt		93	100	Mohr-Coulomb	0	31	Water Surface	Constant
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant

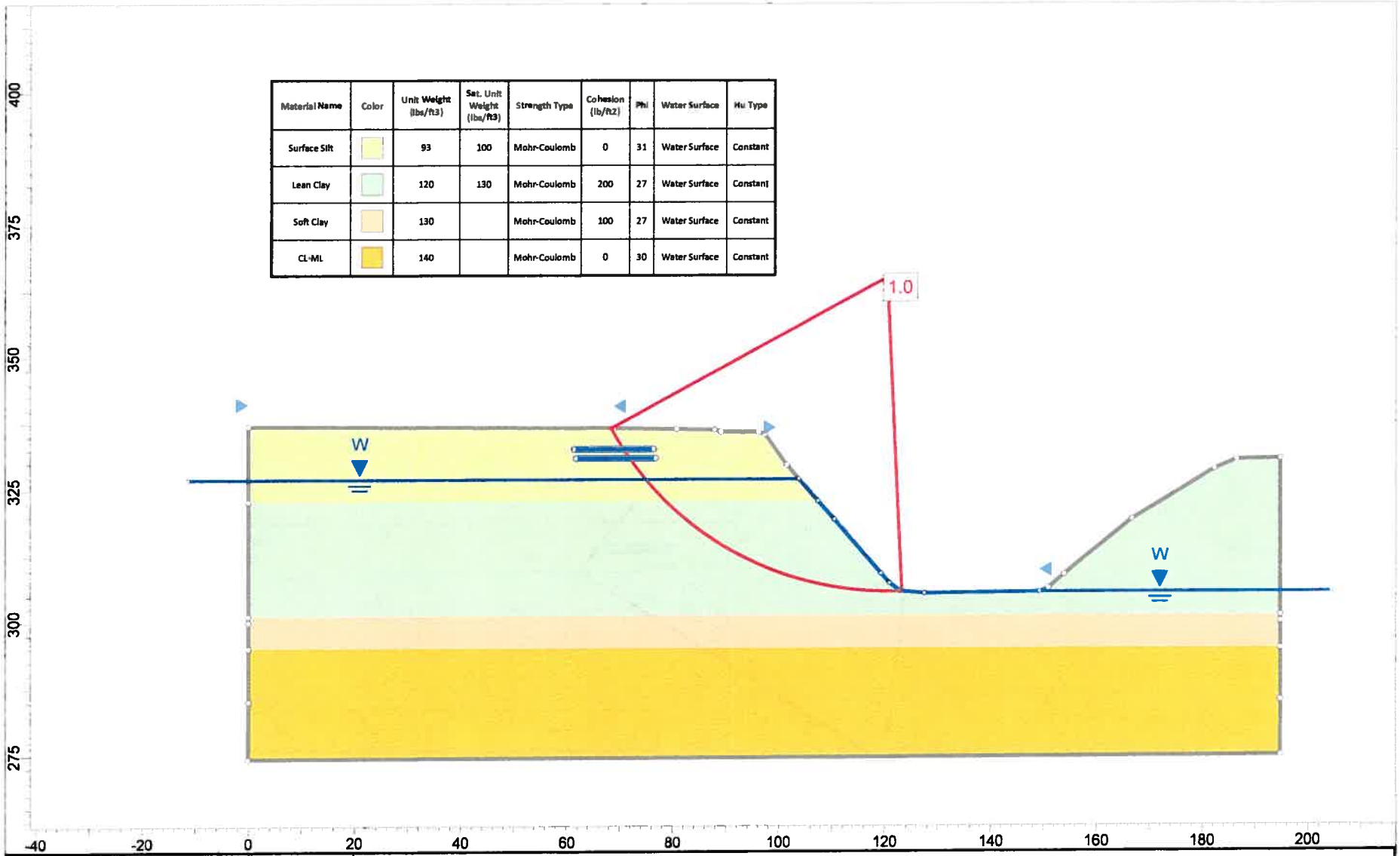


ENGEO
Expect Excellence

SLIDEINTERPRET 6.014

Project	Roselyn Estates II Property			
Analysis Description	Section A-A' 2:1 Setback Reinforced			
Drawn By	R. Hildebrant	Scale	1:300	Company ENGEO
Date	12/27/2011, 11:27:38 AM			File Name A-A'-analysis reinforced higher water.slim

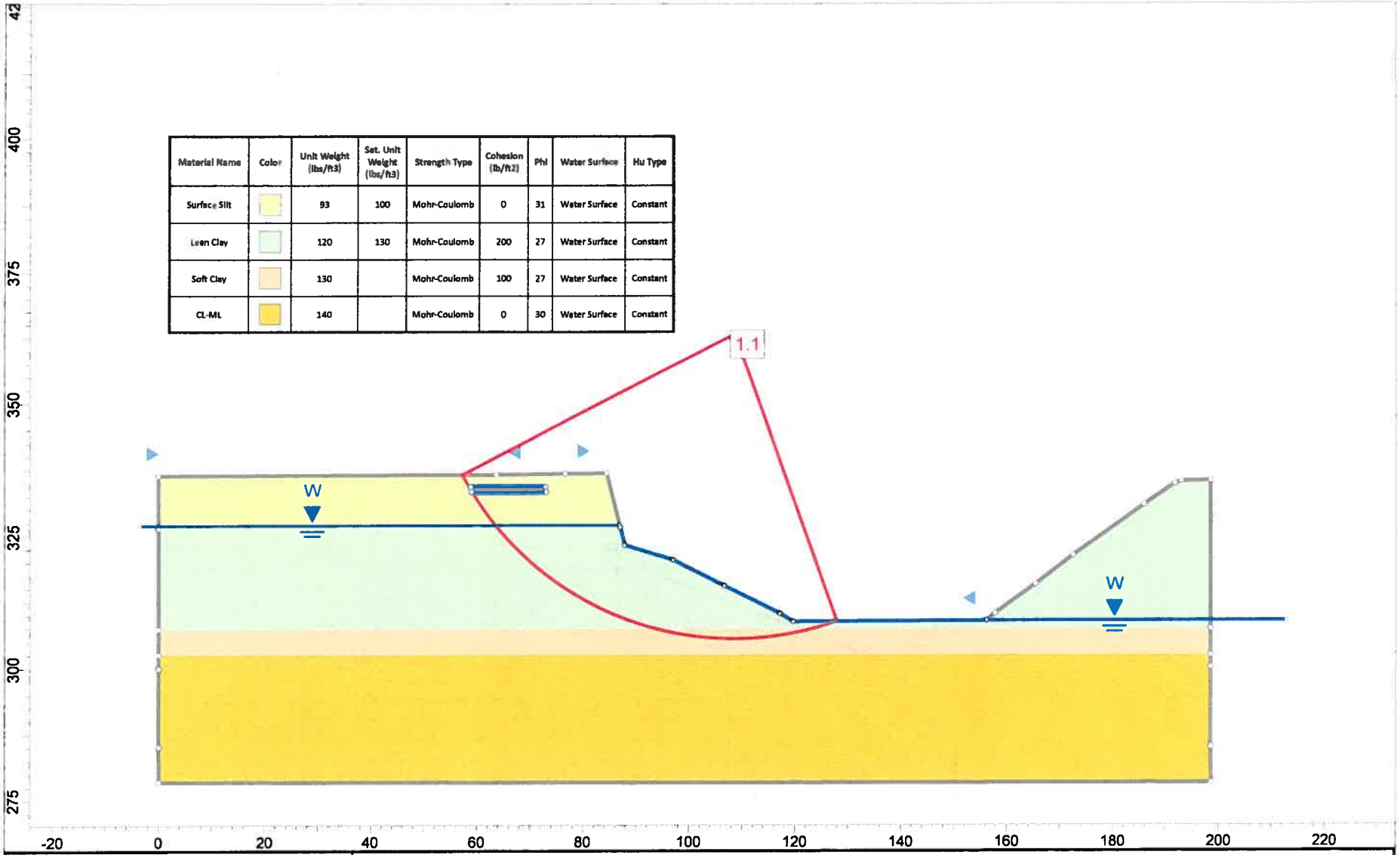
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type
Surface Silt		93	100	Mohr-Coulomb	0	31	Water Surface	Constant
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant



ENGEO
Expect Excellence
SLIDEINTERPRET 6.014

Project	Roselyn Estates II Property			
Analysis Description	Section B-B' 2:1 Setback Reinforced			
Drawn By	R. Hildebrant	Scale	1:300	Company ENGEO
Date	12/27/2011, 11:29:33 AM			File Name B-B'-analysis Reinforced higher water.slim

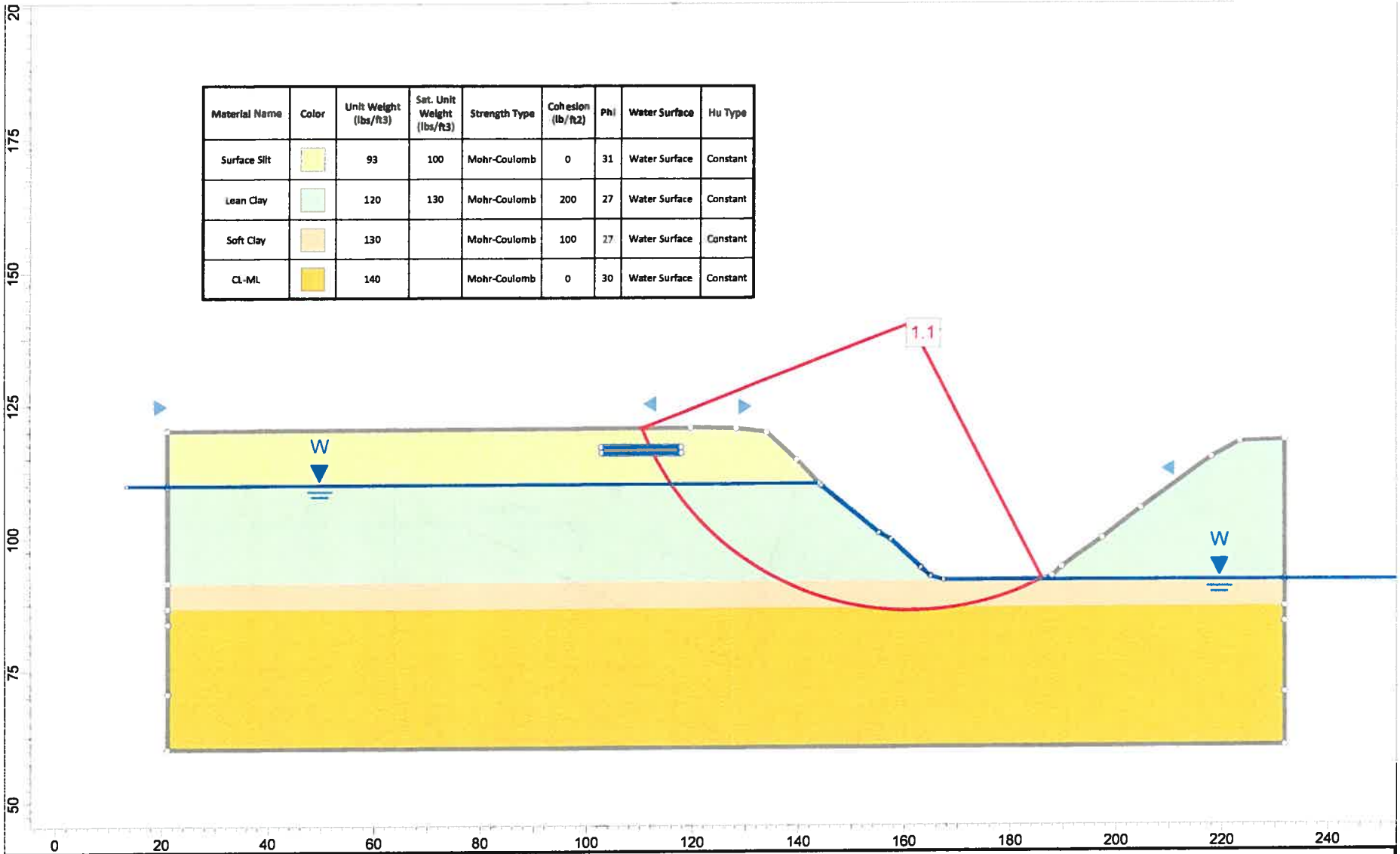
Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Ru Type
Surface Silt		93	100	Mohr-Coulomb	0	31	Water Surface	Constant
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant



ENGEO
Expect Excellence
SLIDEINTERPRET 6.014

Project	Roselyn Estates II Property			
Analysis Description	Section C-C' 2:1 Setback Reinforced			
Drawn By	R. Hildebrant	Scale	1:300	Company ENGEO
Date	12/27/2011, 11:30:08 AM			File Name C-C'-analysis reinforced higher water.slim

Material Name	Color	Unit Weight (lbs/ft3)	Sat. Unit Weight (lbs/ft3)	Strength Type	Cohesion (lb/ft2)	Phi	Water Surface	Hu Type
Surface Silt		93	100	Mohr-Coulomb	0	31	Water Surface	Constant
Lean Clay		120	130	Mohr-Coulomb	200	27	Water Surface	Constant
Soft Clay		130		Mohr-Coulomb	100	27	Water Surface	Constant
CL-ML		140		Mohr-Coulomb	0	30	Water Surface	Constant



ENGEO
Expect Excellence

SLIDEINTERPRET 6.014

Project	Roselyn Estates II Property				
Analysis Description	Section D-D' 2:1 Setback Reinforced				
Drawn By	R. Hildebrant	Scale	1:300	Company	ENGEO
Date	12/27/2011, 11:30:40 AM			File Name	D-D'-analysis reinforced higher water.slim

March 14, 2013
1696-25, L-29629

Mr. Al Baez
City of Pleasanton, Community Development
PO Box 520
Pleasanton, CA 94566

RE: Geotechnical Peer Review
Roselyn Estates II
Pleasanton, California

Dear Mr. Baez:

At your request, we have performed a geotechnical peer review of the static slope stability elements of the proposed Roselyn Estates II development. This project will include seven new homes, along with new public streets and utilities. The primary new street will be an extension of Lynn Drive, which will be located near the top of the southern bank of Arroyo Del Valle. A bio-retention facility will be built along the top of the bank to receive and transport runoff from the project. The purpose of our peer review was to evaluate whether the static slope stability analyses of the arroyo bank conformed to generally accepted principles and practices. It should be noted that a peer review of the earthquake stability of the bank was not included in our scope of work.

DOCUMENTS REVIEWED

We reviewed the following documents as part of our peer review:

- "Roselyn Estates Phase II Project – PUD #00, Tract 0000, City of Pleasanton, Alameda County, California," Prepared by DeBolt Civil Engineering (DCE), General Civil Engineering Plans, 7 sheets, Dated 8/5/12, Project 06136;
- "Hydraulic Evaluation and Bank Erosion Analysis of Arroyo Del Valle, Roselyn Estates II Property, 1623 Cindy Way – Parcel B, Pleasanton, California," Prepared by Engeo, Dated August 1, 2012, Project 4425.000.000;
- "Geotechnical Exploration – Roselyn Estates II Property, Pleasanton, California," Prepared by Engeo, Dated August 1, 2012, Project 4425.000.000;
- "Response to Comments from City of Pleasanton – Roselyn Estates II Property, 1623 Cindy Way – Parcel B, Pleasanton, California," Prepared by Engeo, Dated January 16, 2013, (Revised January 17, 2013), Project 4425.000.000;

PUD-94
EXHIBIT B

- "Response to Peer Review Comments – Roselyn Estates II Property, 1623 Cindy Way – Parcel B, Pleasanton, California," Prepared by Engeo, Dated March 5, 2013, (Revised March 6, 2013), Project 4425.000.000; and

- Miscellaneous Details Related to Bio-Retention Facility Attached to Email from Lynn Jansen, Dated March 6, 2013;

SITE VISIT

The undersigned visited the site on February 20, 2013, to observe the surficial conditions present. In addition, he met with you and Lynn Jansen on the site to discuss some of the project details and issues that were to be addressed in the peer review process.

REQUEST FOR ADDITIONAL INFORMATION

After our site visit and review of initial documents, we sent an email to you on March 1, 2013, requesting that the applicant submit additional information. The issues of concern that were to be addressed involved:

1. The extent of the geomembrane and the joints between the geomembrane sections below the bio-retention facility;

2. The sensitivity of the slope stability analyses to build-up of water within the arroyo slope during times of elevated creek flow; and

3. The likelihood of the geogrid below the public road being impacted by utility construction, and the need for repair of the geogrid should it be severed in the future.

The Engeo letter of March 6, 2013, responded to these issues.

CONCLUSIONS

It is our opinion that the documents prepared and submitted by the applicant's consultants conform to generally accepted geotechnical engineering principles and practices. The key issues we evaluated and our conclusions are as follows:

1. The entire bio-retention facility will be underlain by a geomembrane to limit the entry of collected water into the top of the bank area. The adjacent sections of geomembrane will be overlapped about one foot (not welded or sealed into a watertight condition) so some water may enter the ground at the area it overlaps, but it should be very limited in quantity. Engeo indicated that the civil engineer (DCE) should design the bio-retention area with sufficient volume so that overflow outside the area does not occur.

2. The static slope stability analyses performed by Engeo appear reasonable and appear to utilize appropriate topographic conditions, soil parameters, and groundwater levels. Appropriate factors of safety for long-term stability are achieved with the geogrid inclusion. Reduced factors of safety

will be present as water builds in the bank during periods of high creek flow, but these factors of safety remain at or above 1.0; we judge that this a reasonable analysis.

3. The inclusion of geogrid in the locations proposed is a reasonable response to the conditions present and the proposed construction from a geotechnical standpoint. At a depth of four feet, and beyond the plan limits of the currently proposed utilities, it seems unlikely the geogrid will be impacted by excavations or trenches. However, as Engeo noted, should the geogrid by cut, it should be restored using manufacturer's recommendations.

4. The clean-up work performed at the top of the bank and subsequently repaired does not appear to have significantly disturbed the slope.

CLOSURE

Our firm's services have been performed in accordance with generally accepted geologic and engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied. Our services have been provided at the request of the City of Pleasanton. Our role was to provide technical assistance to the City as it considers its permit in this application and we understand our firm is purported the same protection as the City under State Law.

We trust this provides the information required at this time. If you have any questions, please call.

Very truly yours,

ALAN KROPP & ASSOCIATES

Alan Kropp

REGISTERED PROFESSIONAL ENGINEER
ALAN LEE KROPP
No. 487
Exp. 12/31/13
GEOTECHNICAL
STATE OF CALIFORNIA

Alan Kropp, G.E.

AK/mm

Copies: Addressee (2)

1696-25 Roselyn Estates II-Geotech Peer Review ltr

Al Baez

From: Alan Kropp [akropp@akropp.com]
Sent: Friday, March 01, 2013 3:14 PM
To: Al Baez
Subject: Roselyn Estates II

Al-

I am submitting this email to summarize my comments regarding my peer review of the subject project. So far, I have reviewed the Engeo geotechnical exploration and hydraulic analysis reports (both dated August 1, 2012) as well as their response to comments letter of January 16, 2013. I have also reviewed the 7-sheet plan set prepared by DeBolt Engineering and a bio-remediation detail you sent. I visited the site on 2/20/13, where I met with the applicant (Lynn Jansen) and yourself.

Based on my analyses to date, it is my opinion addition information should be submitted by the applicant and/or his consultants to satisfactorily complete this project application from a geotechnical perspective. The three areas that need to be addressed, along with some specific questions that should be answered, are as follows:

1. Bio-Remediation Facility- Engeo has indicated the bio-remediation area should be underlain by a geomembrane to minimize the introduction of water into the top of the slope. I assume this means the geomembrane should extent under the entire width of the swale area and wrap up at the edges to reach the ground surface. To make this geomembrane liner impervious, it will have to be welded at the seams, much like the sealing that is done below a landfill- is that correct? Does the extent of the geomembrane include the entirety of the triangular area at the east end of the property? With the equivalent of a buried bathtub being created, and a limited orifice for discharging the collected water, what is the likelihood the swale will fill with water because of the slow discharge and overflow outside the swale area?
2. Water Level in Slope- The slope stability analyses indicates the water level within the slope was assumed to be at Elevation 308, the toe of the slope, for the computations. The flooding analyses indicates the water could build up to Elevation 322-327 during a 100-year event. Given the moderately permeable layers of sands and silts present along the creek, it is likely the water surface within the slope along the creek could build up to much higher than Elevation 308. Engeo should perform a sensitivity study to illustrate the degradation in factor of safety with raising of water levels within the slope, and then comment on the highest reasonable levels of build-up they expect. Engeo should then recommend any needed adjustments in their remedial design.
3. Geogrid Reinforcement- The current design appears to indicate the geogrid below the roadway will end immediately north of the proposed water main in the street. Engeo should confirm this location (and note if any further modification is needed based on Item 2 above), and indicate whether in the unlikely event the geogrid is severed it must be spliced back together to meet the project stability requirements.

I hope this is clear. Let me know if you have any questions. I would be glad to discuss this with the applicant's consultants if that would be beneficial.

Alan Kropp, G.E.
President, Principal Engineer
Alan Kropp & Associates
2140 Shattuck Avenue, Suite 910
Berkeley, CA 94704
(510) 841-5095 (office)
(510) 841-8357 (fax)
www.akropp.com

PUD-94
EXHIBIT B

Roselyn Estates II

1623 CINDY WAY
CITY OF PLEASANTON
Alameda County
California

HYDRO-MODIFICATION REPORT

Prepared By:

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, CA 94526

March 2013
Job No. 06136

March, 2013
Job No. 06136

HYDRO-MODIFICATION SUMMARY

Hydromodification refers to the changes in the magnitude and frequency of flows as a result of urbanization and the resulting impacts on receiving channels and drainage facilities in terms of capacity, erosion sedimentation, and degradation.

Hydromodification analysis was based upon the following criteria:

- For flow rates between the pre-project 10-year runoff even, the post-project discharge rates, and durations may not deviate above the pre-project discharge rates and durations by more than 10 percent over more than 10 percent of the length of the flow duration curve.

The entire Roselyn Estates II parcel is 3.71 acres. A portion of the parcel lies within the existing creek, so the area that is proposed to be developed is only 2.28 acres. Seven single family residences and streets are proposed on the 2.28 acres. The hydromodification calculations attached analyses the 7 new lots and adjoining streets. The project naturally drains to the north, to Arroyo del Valle which traverses the subject property.

The proposed development has been divided into Drainage Management Areas (DMA's) that are segregated into different categories: 1) roof area 2) paved area 3) landscape areas. A bio-retention area was selected to manage increases in runoff discharge rates and durations in order to mitigate potential hydromodification impacts due to the proposed development. All stormwater runoff from the proposed development will be routed to bioretention areas. The bio-retention area consists of a surface ponding layer, an 18" growing medium, and a storage layer. The bio-retention area has an overflow catchment for the purposes of routing flows from larger storm events.

While the entire site is 3.71 acres, only 2.28 acres is subject to hydromodification requirements as mentioned previously. After development, runoff will be directed to the bioretention area.

Pervious	Impervious Roof	Impervious Road	Driveways	Total
0.92	0.65	0.57	0.14	**2.28 acres**

Bay Area Hydrology Model
PROJECT REPORT

Project Name: Roselyn esates One swale
Site Address: Calico
City : Pleasanton
Report Date : 4/4/2013
Gage : LIVERMORE
Data Start : 1959/10/01
Data End : 2004/09/30
Precip Scale: 1.00
BAHM Version:

PREDEVELOPED LAND USE

Name : Basin PRE
Bypass: No

GroundWater: No

Pervious Land Use	Acres
A,Shrub,Flat(0-5%)	2.28

Impervious Land Use	Acres

Element Flows To:

Surface	Interflow	Groundwater

Name : Developed Property
Bypass: No

GroundWater: No

Pervious Land Use	Acres
A,Grass,Flat(0-5%)	.92

Impervious Land Use	Acres				
Roads,Flat(0-5%)	0.65	Area	0.57	,Flat(0-5%)	0.14

Element Flows To:

Surface	Interflow	Groundwater
Bioretenti Surfacele,		

Name : Bioretention Swale

Element Flows To:

Outlet 1	Outlet 2

Name : Bioretenti Surfacele

Element Flows To:

Outlet 1	Outlet 2
Bioretention Swale,	

ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.836093
5 year	1.7653
10 year	2.351881
25 year	2.600436

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.316997
5 year	0.501083
10 year	0.50906
25 year	0.526948

Yearly Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1961	0.836	0.131
1962	0.224	0.144
1963	0.793	0.333
1964	1.268	0.482
1965	0.025	0.501
1966	0.601	0.272
1967	0.459	0.209
1968	3.740	0.580
1969	0.838	0.501
1970	1.731	0.486
1971	1.277	0.255
1972	0.967	0.325
1973	0.002	0.182
1974	2.016	0.522
1975	0.979	0.233
1976	0.465	0.117
1977	0.000	0.024
1978	0.001	0.023
1979	1.264	0.218
1980	1.391	0.229
1981	1.136	0.326
1982	0.096	0.319
1983	2.355	0.510
1984	1.775	0.490
1985	0.744	0.317
1986	0.236	0.172
1987	2.492	0.509
1988	0.433	0.280
1989	0.002	0.026
1990	0.018	0.029
1991	0.156	0.256
1992	0.779	0.260
1993	0.710	0.489
1994	1.160	0.355
1995	0.266	0.109
1996	2.193	0.515
1997	2.447	0.505
1998	1.394	0.476
1999	2.072	0.449
2000	0.871	0.191
2001	0.763	0.373
2002	0.010	0.026
2003	0.290	0.149
2004	1.227	0.504
2005	2.350	0.504

Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	3.7399	0.5800
2	2.4919	0.5219
3	2.4467	0.5153
4	2.3548	0.5097
5	2.3503	0.5087
6	2.1934	0.5054
7	2.0725	0.5042
8	2.0164	0.5041
9	1.7748	0.5011
10	1.7310	0.5009
11	1.3945	0.4904
12	1.3905	0.4886
13	1.2766	0.4856
14	1.2676	0.4823
15	1.2641	0.4760
16	1.2273	0.4490
17	1.1605	0.3734
18	1.1360	0.3546
19	0.9792	0.3327
20	0.9670	0.3264
21	0.8710	0.3246
22	0.8383	0.3195
23	0.8361	0.3170
24	0.7930	0.2802
25	0.7791	0.2721
26	0.7626	0.2600
27	0.7440	0.2555
28	0.7102	0.2545
29	0.6010	0.2329
30	0.4654	0.2293
31	0.4589	0.2176
32	0.4329	0.2087
33	0.2899	0.1912
34	0.2656	0.1815
35	0.2358	0.1720
36	0.2240	0.1495
37	0.1563	0.1444
38	0.0964	0.1311
39	0.0254	0.1169
40	0.0182	0.1090
41	0.0104	0.0287
42	0.0023	0.0261
43	0.0016	0.0257
44	0.0011	0.0242
45	0.0005	0.0228

POC #1
The Facility PASSED

The Facility PASSED.

Flow(CFS)	Predev	Dev	Percentage	Pass/Fail
0.0836	1152	579	50	Pass
0.1065	1011	473	46	Pass
0.1294	889	375	42	Pass
0.1523	792	315	39	Pass
0.1753	724	264	36	Pass
0.1982	666	225	33	Pass
0.2211	610	189	30	Pass
0.2440	565	161	28	Pass
0.2669	523	113	21	Pass
0.2898	482	91	18	Pass
0.3127	437	73	16	Pass
0.3356	400	63	15	Pass
0.3586	372	56	15	Pass
0.3815	351	51	14	Pass
0.4044	322	46	14	Pass
0.4273	301	43	14	Pass
0.4502	284	39	13	Pass
0.4731	255	35	13	Pass

0.4960	240	23	9	Pass
0.5189	228	5	2	Pass
0.5418	213	3	1	Pass
0.5648	201	2	0	Pass
0.5877	187	0	0	Pass
0.6106	175	0	0	Pass
0.6335	166	0	0	Pass
0.6564	153	0	0	Pass
0.6793	142	0	0	Pass
0.7022	134	0	0	Pass
0.7251	125	0	0	Pass
0.7481	117	0	0	Pass
0.7710	108	0	0	Pass
0.7939	97	0	0	Pass
0.8168	94	0	0	Pass
0.8397	87	0	0	Pass
0.8626	84	0	0	Pass
0.8855	81	0	0	Pass
0.9084	78	0	0	Pass
0.9313	74	0	0	Pass
0.9543	71	0	0	Pass
0.9772	65	0	0	Pass
1.0001	57	0	0	Pass
1.0230	55	0	0	Pass
1.0459	54	0	0	Pass
1.0688	53	0	0	Pass
1.0917	52	0	0	Pass
1.1146	50	0	0	Pass
1.1376	47	0	0	Pass
1.1605	47	0	0	Pass
1.1834	44	0	0	Pass
1.2063	42	0	0	Pass
1.2292	39	0	0	Pass
1.2521	38	0	0	Pass
1.2750	36	0	0	Pass
1.2979	32	0	0	Pass
1.3208	31	0	0	Pass
1.3438	31	0	0	Pass
1.3667	30	0	0	Pass
1.3896	30	0	0	Pass
1.4125	27	0	0	Pass
1.4354	26	0	0	Pass
1.4583	25	0	0	Pass
1.4812	25	0	0	Pass
1.5041	24	0	0	Pass
1.5271	23	0	0	Pass
1.5500	22	0	0	Pass
1.5729	22	0	0	Pass
1.5958	22	0	0	Pass
1.6187	21	0	0	Pass
1.6416	20	0	0	Pass
1.6645	20	0	0	Pass
1.6874	20	0	0	Pass
1.7103	19	0	0	Pass
1.7333	18	0	0	Pass
1.7562	18	0	0	Pass
1.7791	17	0	0	Pass
1.8020	17	0	0	Pass
1.8249	16	0	0	Pass
1.8478	16	0	0	Pass
1.8707	16	0	0	Pass
1.8936	15	0	0	Pass
1.9166	15	0	0	Pass
1.9395	15	0	0	Pass
1.9624	15	0	0	Pass
1.9853	13	0	0	Pass
2.0082	12	0	0	Pass
2.0311	11	0	0	Pass
2.0540	11	0	0	Pass
2.0769	10	0	0	Pass
2.0999	10	0	0	Pass
2.1228	9	0	0	Pass

2.1457	9	0	0	Pass
2.1686	9	0	0	Pass
2.1915	8	0	0	Pass
2.2144	7	0	0	Pass
2.2373	7	0	0	Pass
2.2602	6	0	0	Pass
2.2831	6	0	0	Pass
2.3061	6	0	0	Pass
2.3290	6	0	0	Pass
2.3519	5	0	0	Pass

Roselyn Estates II

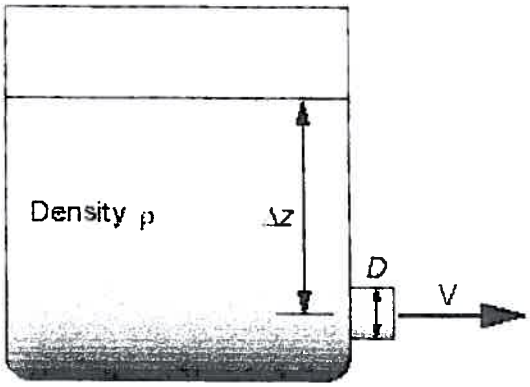
1623 CINDY WAY
CITY OF PLEASANTON
Alameda County
California

HYDRO-MODIFICATION OUTLET

Prepared By:

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, CA 94526

March 2013
Job No. 06136



Determine 2 year flow through 3 inch pipe

Inputs

Depth of spout, Δz:	10.5	in
Fluid density, ρ:	1	kg/l
Spout exit diameter, *D*:	3	in
Discharge Coefficient, *C*:	0.95	

Answers

Exit Velocity, *V*:	7.50 ft/s	ft/s
Volume Flowrate:	0.350 ft^3/s	ft^3/s

Determine 5 year flow through 2–3 inch pipes

Inputs

Depth of spout, Δz:	5.5
Fluid density, ρ:	1
Spout exit diameter, *D*:	3
Discharge Coefficient, *C*:	0.98

Answers

Exit Velocity, *V*:	5.43 ft/s
Volume Flowrate:	0.251 ft^3/s

10 inch- 10 year/overflow pipe

Inputs

Depth of spout, Δz:	1	ft
Fluid density, ρ:	1	lb/in^3
Spout exit diameter, D:	10	in
Discharge Coefficient, C:	0.98	

Answers

Exit Velocity, V:	8.02 ft/s	ft/s
Volume Flowrate:	4.29 ft^3/s	ft^3/s

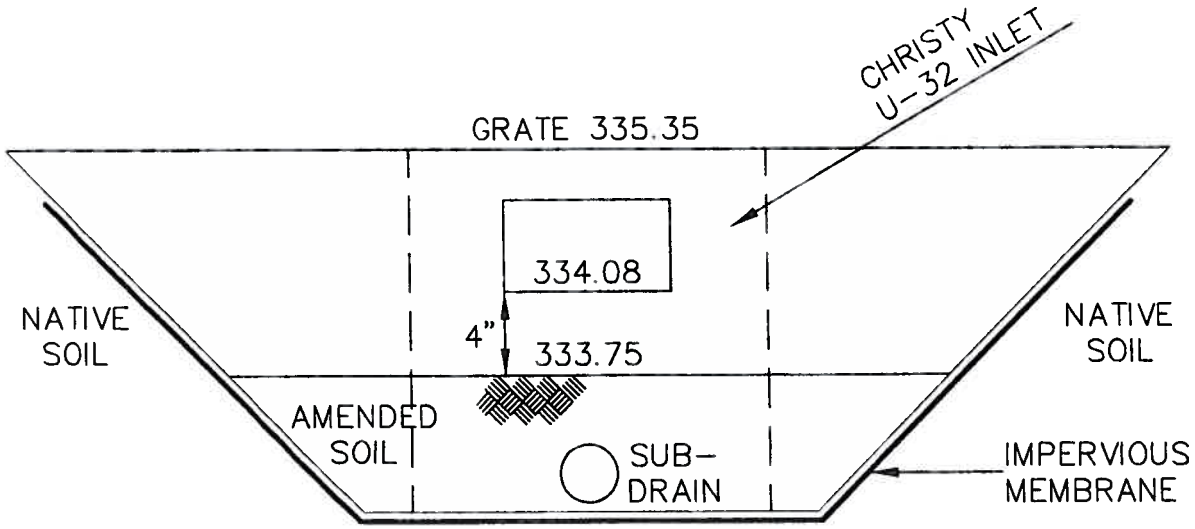
ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

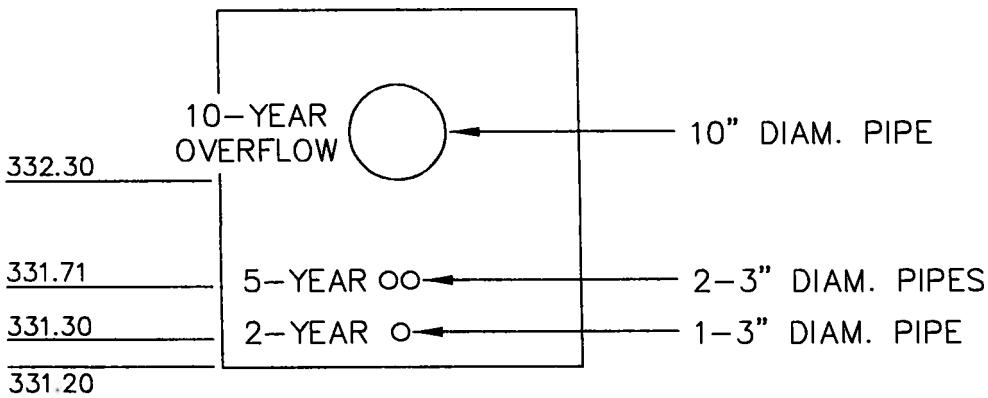
Return Period	Flow(cfs)
2 year	0.836093
5 year	1.7653
10 year	2.351881
25 year	2.600436

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.316997
5 year	0.501083
10 year	0.50906
25 year	0.526948



SECTION A-A
N.T.S.



SECTION B-B
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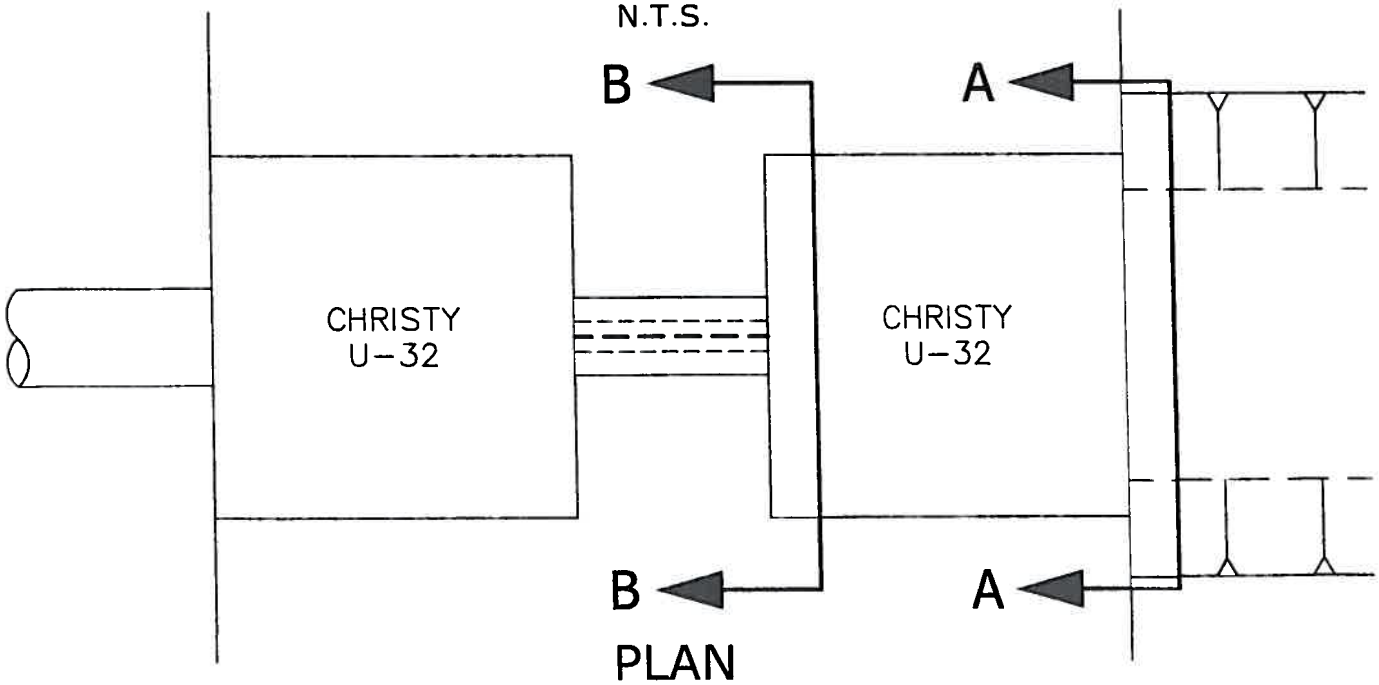
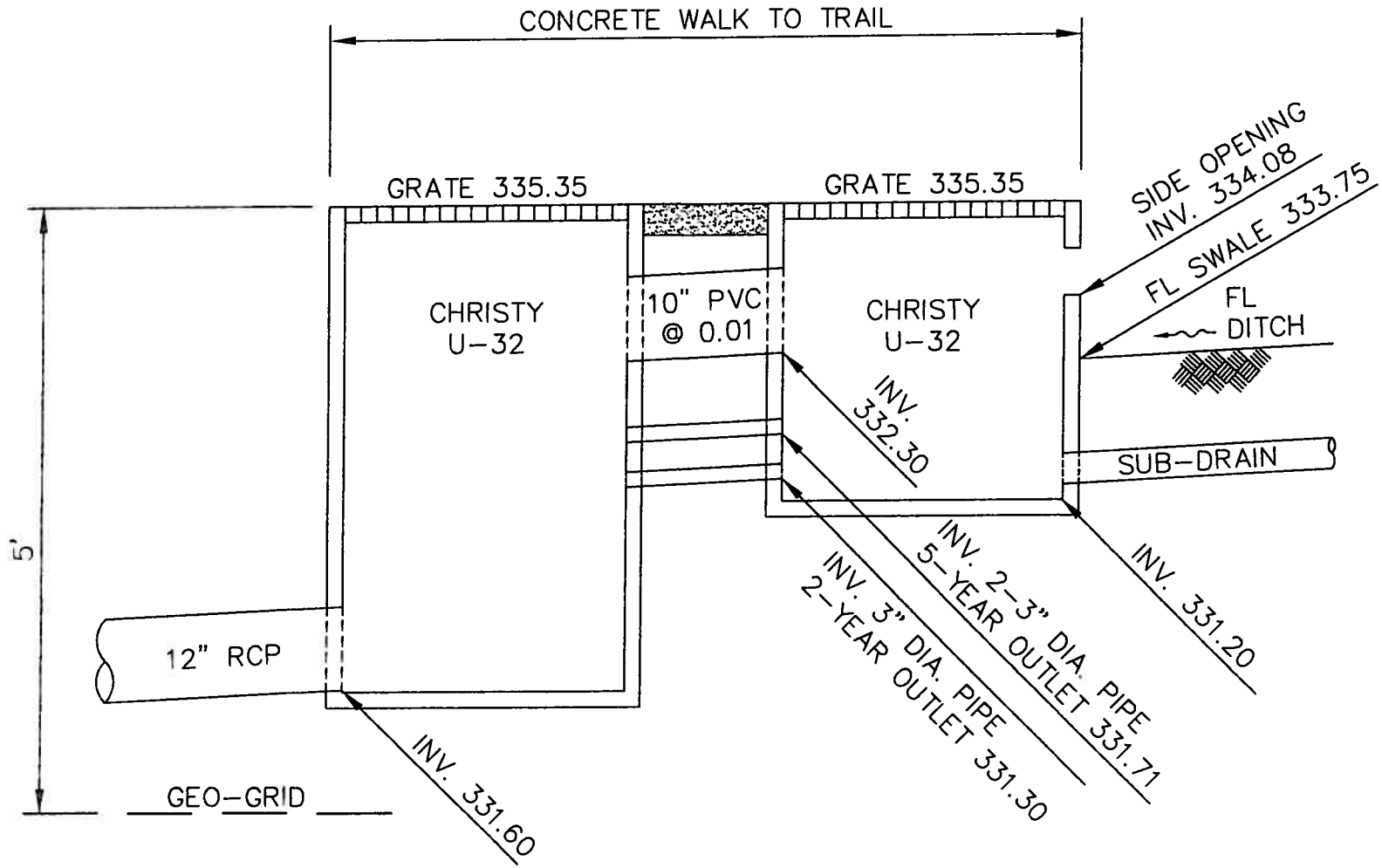


PLAN
N.T.S.



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IMP SIZING CALCULATIONS

Roselyn Estates II
1623 Cindy Way
Plasanton, CA

March 2013
Job # 06136

Prepared by:

DeBolt Civil Engineering
811 San Ramon Valley Boulevard
Danville, CA
925-837-2780

Project Name: Roselyn Estates II
Project Type: Treatment and Flow Control
Location: Pleasanton
APN: Alamed County
Drainage Area: 109500 sf
Mean Annual Precipitation: 20 in

IV. Areas Draining to IMPs

IMP Name: IMP1 (Soil Type: D)

IMP Type: Bioretention Facility
Soil Type: D

DMA Name	DMA Area (sq ft)	Post-Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
					IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA1	3,670	Conventional Roof	1.00	3,670				
DMA2	3,285	Conventional Roof	1.00	3,285				
DMA3	3,285	Conventional Roof	1.00	3,285				
DMA4	3,285	Conventional Roof	1.00	3,285				
DMA5	3,670	Conventional Roof	1.00	3,670				
DMA8	555	Concrete or Asphalt	1.00	555				
DMA9	1,125	Concrete or Asphalt	1.00	1,125				
DMA10	1,380	Concrete or Asphalt	1.00	1,380				
DMA11	1,210	Concrete or Asphalt	1.00	1,210				
DMA12	535	Concrete or Asphalt	1.00	535				
DMA16	27,890	Landscape	0.70	19,523				
DMA17	11,520	Landscape	0.70	8,064				
			Total	49,587				
				Area	0.050	1.009	2,501	6,845
				Surface Volume	0.042	1.009	2,101	3,020
				Subsurface Volume	0.055	1.009	2,751	10,000
							Maximum Underdrain Flow (cfs)	0.11
							Orifice Diameter (in)	2.16

IMP Name: IMP2 (Soil Type: D)

IMP Type: Bioretention Facility
Soil Type: D

DMA Name	DMA Area (sq ft)	Post-Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
					IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA6	3,670	Conventional Roof	1.00	3,670				
DMA7	3,670	Conventional Roof	1.00	3,670				
DMA13	540	Concrete or Asphalt	1.00	540				
DMA14	605	Concrete or Asphalt	1.00	605				
DMA15	29,470	Concrete or Asphalt	1.00	29,470				
			Total	37,955				
				Area	0.050	1.009	1,914	5,135
				Surface Volume	0.042	1.009	1,608	2,500
				Subsurface Volume	0.055	1.009	2,106	2,500
							Maximum Underdrain Flow (cfs)	0.07
							Orifice Diameter (in)	1.70

KELLCO Services, Inc.

1623 Cindy Way
Pleasanton, CA 94566

KELLCO Job #1201-03

Pre-Demolition
Asbestos and Lead Inspection Report

for

ENGEO Inc.
2010 Crow Canyon Place
Suite #250
San Ramon, CA 94583

January 9, 2011

PUD-94
EXHIBIT B

3137 Diablo Avenue • Hayward, CA 94545-2701• (510) 786-9751 • fax (510) 786-9625
http://www.kellco.com email: mailbox3137@kellco.com

KELLCO Services, Inc.

Pre-Demolition
Asbestos and Lead Paint Inspection Report

Date: January 9, 2012

KELLCO Job #: 1201-03

Client: ENGEO Inc.
2010 Crow Canyon Place
Suite #250
San Ramon, CA 94583

Location: 1623 Cindy Way
Pleasanton, CA 94566

Date of Inspection: January 5, 2012

Inspectors: Derrik Quach CSST #02-3214, CDP Lead

Description Of The Inspected Area: The inspection was conducted on the interior and exterior of a shed, pump house, trailer and garage located in Pleasanton, California.

Shed – This is 8'x16' single story structure that is comprised of wood on the walls and roofing. The flooring is wood. There was major damage to the roofing that was noted. Additionally, left over paint cans and oil containers were noted inside this shed.

Trailer – This is 8'x16' single story all metal structure.

Pump House – This is 14'x16' single story structure. The interior has wood paneling, drywall and brick on the walls. There is floor tile and mastic on the floors. The exterior has stucco and brick on the walls with a sloped wood shingle roofing system. This structure is built on a concrete foundation. There is loose and peeling paint that was noted by the inspector.

Garage – This is 25'x32' single story structure. The interior has drywall on the walls and ceiling with a concrete floor. The exterior has wood on the walls with a sloped wood roof. The roofing was removed at the time of the inspection. The interior of this structure has abandoned doors, signs, windows, cabinets, toilets, appliances, wood baseboard, light fixtures, metal flashing etc.

Background

This is a pre-demolition asbestos and lead inspection on four structures located in Pleasanton, California.

Synopsis

Asbestos was found in the following materials;

- Floor Tile – Pump House
- Vinyl Floor Tile – Pump House
- Roofing Debris Mastic – Garage

Lead paint was found in **ALL** the tested materials;

- Multiple Colors of Paint on Metal
- White Paint on Wood
- Dark Brown Paint on Wood

Fluorescent lights, fluorescent fixture ballasts and thermostats may contain PCB's and mercury were noted at this location by the inspector.

Please Note: There are abandoned materials such as: motor oil, paint cans, doors, signs, windows, cabinets, toilets, appliances, wood baseboard, light fixtures, metal flashing etc. (See attached photographs) It is up the contractor to properly dispose and recycle these materials prior to demolition of the structures.

About the Inspection

The inspection performed was both visual and tactile. Samples were taken of suspect materials located at the interior and exterior of the survey area.

The inspection was a reasonable attempt to find suspect materials that were hidden within walls, behind structures, in vertical shafts or in areas not normally accessible. If any non-sampled materials are uncovered, these should be submitted for asbestos and/or lead paint analysis.

The following numbering convention was used for this inspection:

LETTER	STANDS FOR	EXAMPLE	MEANING
XX	Building DESIGNATION based on information provided on drawings provided to us prior to inspection	1623	1623 Cindy Way, Pleasanton, CA
Y & *Optional Z*	Building SYSTEM (W: wall; F: Flooring; C: Ceiling; T: TSI; M: Misc)	M W F	Mechanical Sample Analysis Wall Sample Analysis Flooring Sample Analysis
xx	Sample number and layer	01 Layer 1 Layer 2 Layer 3	First Sample First Layer Second Layer Third Layer

- ***Asbestos Findings***

Asbestos samples were analyzed in Schneider Laboratories, Inc. by Polarized Light Microscopy, the EPA's recommended method. Copies of the full laboratory reports are attached. These valuable reports can be utilized as future reference to determine if a particular material was tested.

Photographs of sampled materials are included. Sample locations are noted on the attached not-to-scale drawing.

The determination of a material to be Asbestos Containing Material (ACM) was made either by direct sampling or by homogeneity with at least one positive sample of the same material.

Materials that tested **positive** for asbestos are:

Lab Sample #	Field Sample #	Field Description	Layer #	Layer Name	Asbestos %
31309358	1923-F-11	Pump House W Floor	1	Vinyl Floor Tile	4% Chrysotile
31309354	1623-F-07	Pump House S Floor	1	Floor Tile	4% Chrysotile
31309369	Garage-M-22	Garage Roof Debris	1	Mastic	4% Chrysotile
31309370	Garage-M-23	Garage Roof Debris	1	Mastic	4% Chrysotile

Samples that have less than 10% asbestos can be submitted for further analysis by the Point Count method as described elsewhere in this document. If the Point Count method determines

that the material contains less than 1% asbestos, these materials can be disposed of as non-hazardous asbestos containing construction waste.

Tested materials that were **none detected** for asbestos are:

Lab Sample #	Field Sample #	Field Description	Layer #	Layer Name
31309348	Shed-M-01	Shed Entrance S End	1	Roof Shingle
31309349	Shed-M-02	Shed Entrance N End	1	Roof Shingle
31309350	1623-W-03	Pump House E Wall	1	Stucco
31309351	1623-W-04	Pump House S Wall	1	Stucco
31309352	1623-W-05	Pump House N Wall	1	Stucco
31309353	1623-F-06	Pump House N Floor	1	Concrete
31309354	1623-F-07	Pump House S Floor	2	Mastic
31309354	1623-F-07	Pump House S Floor	3	Felt Paper
31309355	1923-M-08	Pump House E Floor	1	Drywall
31309356	1623-W-09	Pump House E Wall	1	Paper
31309356	1623-W-09	Pump House E Wall	2	Fiberglass Material
31309357	1623-W-10	Pump House E Wall	1	Felt Paper
31309358	1923-F-11	Pump House W Floor	2	Mastic
31309358	1923-F-11	Pump House W Floor	3	Felt Paper
31309359	1623-W-12	Pump House S Wall	1	Mortar
31309359	1623-W-12	Pump House S Wall	2	Brick
31309360	1623-W-13	Pump House SE Wall	1	Mortar
31309360	1623-W-13	Pump House SE Wall	2	Brick
31309361	1623-F-14	Pump House E Floor	1	Concrete
31309362	1623-R-15	Pump House SE Roof	1	Felt Paper
31309363	1623-R-16	Pump House N Roof	1	Felt Paper
31309364	1623-C-17	Pump House E Ceiling	1	Drywall
31309365	1623-C-18	Pump House SW Ceiling	1	Drywall
31309366	Garage-R-19	Garage Roof SE End	1	Felt Paper
31309366	Garage-R-19	Garage Roof SE End	2	Ceramic Tile
31309367	Garage-R-20	Garage Roof W End	1	Felt Paper
31309367	Garage-R-20	Garage Roof W End	2	Ceramic Tile
31309368	Garage-W-21	Garage W Wall	1	Felt Paper
31309369	Garage-M-22	Garage Roof Debris	2	Ceramic Tile
31309371	Garage-W-24	Garage NW Wall	1	Drywall
31309372	Garage-W-25	Garage E Wall	1	Drywall
31309373	Garage-C-26	Garage N Ceiling	1	Drywall
31309374	Garage-M-27	Garage Attic Space	1	Paper
31309374	Garage-M-27	Garage Attic Space	2	Fiberglass Material
31309375	Garage-F-28	Garage W Floor	1	Concrete
31309376	Garage-F-29	Garage E Floor	1	Concrete

- ***Paint Findings***

Lead samples were analyzed by Atomic Absorption in . OSHA requires protection of workers from exposure to any lead. Paint should be considered as containing lead if it is the same color as any positive tested material, unless it has specifically been tested and shown to be **none detected** for lead.

The following materials tested **positive** for lead:

Lab Sample #	Field Sample #	Field Description	Lead %	Lead PPM
31309439	Shed-Pb-01	Exterior Wall Trailer Multi Color Paint on Metal	2.384	23,837
31309440	1623-Pb-02	Exterior Wall White Paint on Wood	0.729	7,288
31309441	Garage-Pb-03	Exterior Wall Dark Brown Paint on Wood	0.024	241

Paint of the same color as the above samples should be considered positive unless proven otherwise by direct sampling with results of "None Detected."

The following are materials for which the lead was **none detected**: **NONE**

- ***Other Hazardous Materials***

The building contains light fixtures with fluorescent bulbs and ballasts that may contain PCB's. These should be handled in accordance with regulations.

It is also anticipated that the fluorescent light tubes may contain mercury. If they are to be removed, they should be recycled properly

Thermostats were observed throughout the building to be of the mercury type.

PCB's were used to increase flexibility in many construction materials, such as sealants, mastics, window putty, etc. We recommend testing mastic and putty-like materials for PCB's.

Please Note: There are abandoned materials such as: motor oil, paint cans, doors, signs, windows, cabinets, toilets, appliances, wood baseboard, light fixtures, metal flashing etc. (See attached photographs) It is up the contractor to properly dispose and recycle these materials prior to demolition of the structures.

Regulatory Requirements

The Environmental Protection Agency (EPA) defines Asbestos Containing Material as any material that contains greater than 1% asbestos. Materials containing greater than 1% asbestos must be removed prior to demolition or renovation if they will be disturbed.

Friable asbestos containing material is any material that can be crushed or pulverized by hand pressure when dry, or materials that can be rendered to a crumbled, pulverized, or powdered state when dry by crushing, sanding, sawing, shot blasting, or through demolition or renovation activities.

As stated by NESHAP regulations, any material that contains less than 10% asbestos using the visual estimation method can be point counted with gravimetric reduction. The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. If the Point Count method determines that the material contains less than 1% asbestos, the material being analyzed can be disposed of as a non-hazardous asbestos containing construction waste.

Removal or disturbance of material with any detectable amount of asbestos must be handled in accordance with OSHA regulations. Cal-OSHA registration is required if the material contains more than .1% asbestos ($1/10^{th}$ of a percent). If there is more than 100 feet (linear or square) of an asbestos containing material that will be abated or disturbed, a California State registered and licensed asbestos abatement contractor must perform the work. If there is less than 100 feet, the work does not require a licensed asbestos abatement contractor, but must still conform to Cal-OSHA regulations.

Removal or disturbance of any amount of lead paint requires adherence to the Cal-OSHA and CDPH regulations, including proper training and certification for workers and supervisors

The OSHA lead (1532) regulations require that a Negative Initial Determination for lead exposure be made with paint that contains greater than 0.06% (600 ppm) of lead. Paint with less than 0.06% lead should still be treated within the OSHA guidelines, but with reasonable work practices should not generate OSHA action levels of lead exposure.

Building components with intact lead paint and no other hazardous materials can be disposed of as no hazardous construction waste. Paint chips and debris must be disposed of as lead containing hazardous waste.

Comment Regarding All Asbestos Containing Materials:

Asbestos containing materials in good condition do not necessarily need to be removed unless they will be disturbed; they should however be respected.

Employees, contract workers and others should be advised not to drill, saw, scrape or otherwise disturb this material without taking precautionary measures appropriate to asbestos containing material.

Asbestos containing material should be removed prior to the renovation and must be removed prior to demolition.

Comment Regarding All Lead Containing Materials:

Lead is a known health hazard. Lead containing materials in good condition do not necessarily need to be removed if they are not disturbed; they should however be respected.

Painted surfaces that contain lead should be made known to contractors who may disturb them during their work. OSHA guidelines for workers in contact with lead paint apply if ANY detectable lead is found.

Anyone coming in contact with leaded paint should be advised not to disturb it without taking precautionary measures appropriate to avoid lead contamination or lead exposure.

Areas Needing Immediate Corrective Action

Asbestos (in any condition) and chipping and peeling lead paint should be removed prior to renovation and must be removed prior to demolition of the survey site.

Analytical Procedures

- ***POLARIZED LIGHT MICROSCOPY (PLM)***

  Bulk samples were analyzed in accordance with U.S. EPA "Test Method for Determination of Asbestos in Bulk Building Materials, 1993," with inclusion of area percent estimates of the sample components. The use of the McCrone Color Dispersion Staining Technique supplements the analysis when considered useful by the analyst. The samples are prepared with refractive immersion oil and are examined under Polarized Light Microscopy (PLM). The accuracy of the visual estimate method is 1%.

  As per the standard "...The accuracy in the determination of the presence or absence of asbestos of greater than 1 area percent asbestos is greater than 99%." ASTM Committee D22.05, 1/18/88, Standard *Method of Testing for Asbestos Containing Materials by Polarized Light Microscopy*. If the sample matrix is reduced to minimize non-asbestos components, the detection limit can be mathematically enhanced, based on the amount of material remaining after matrix reduction. This method is called gravimetric reduction. This method involves ashing and chemical dissolution of the sample.

- ***POINT COUNTING***

  The Point Counting method is a much more accurate analytical method for determining the percent of asbestos in a particular material. KELLCO uses a muffle furnace to ash the sample and remove organic compounds. Hydrochloric acid is used to dissolve some of the non-asbestos minerals. Under this method a minimum of 125 points are counted from each of 8 different slide preparations of the same sample (total of 1000 points min.) If the **Point Count Method** determines that the material contains less than 1% asbestos, the material being analyzed can be treated as non-hazardous asbestos containing construction waste. **Note: ONLY the Point Count Method can be used for this determination.**

- ***ATOMIC ABSORPTION FOR LEAD***

  Paint samples were collected for atomic absorption (AA) analysis. The detection limit for each sample depends upon many factors including the sensitivity of the instrument and the sample size. In the KELLCO laboratory utilizing flame AA, the detection limit is normally .01% or 100 parts per million (ppm).

KELLCO Qualifications

The KELLCO asbestos inspector is licensed with the State of California Department of Occupational Safety and Health (CAL-OSHA).

The KELLCO lead inspector is licensed by the California Department of Public Health (CDPH)

The following supporting documents are attached to this report:

- Laboratory analytical reports
- Photographs of sample locations
- Floor plan or sketch showing sample locations

Please call KELLCO if there are any questions and/or clarifications regarding this report. We look forward to working with you in the future.

Sincerely,

KELLCO Services, Inc.

Tim C. Cannard CAC #94-1395, CDPH Lead #764
Senior Project Manager

Asbestos Definitions and Classifications

ACM	(Asbestos Containing Material) – **Commercial asbestos product** containing more than 1% asbestos. ACM must be disposed as hazardous waste. Note: Federal OSHA and Cal-OSHA control materials containing any amount of asbestos.
ACBM	(Asbestos Containing Building Material) – AHERA/ASHARA term for material containing more than 1% asbestos in or on interior structural members or other structural components. Includes covered walkways, porticos and exterior HVAC TSI.
ACCM	(Asbestos Containing Construction Material) – California term for a manufactured construction material containing greater than .1% (one tenth of one percent) asbestos.
PACM	(Presumed Asbestos Containing Material) OSHA considers all **TSI and surfacing** materials installed prior to1980 to be ACM unless proven otherwise.
Friable	Asbestos Containing Material that can be crumbled pulverized or reduced to powder by hand pressure when dry.
NOA	Naturally Occurring Asbestos. CARB defines as having >.25% by point counting.
Acm	CARB term for naturally occurring asbestos >.25% by point counting
DACM	Designated Asbestos Containing Material: Floortile installed before 1981

Categories of Asbestos Used BY EPA AHERA/ASHARA and OSHA/Cal-OSHA

TSI	(Thermal System Insulation) - "Thermal system insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain. "Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.
SURFACING (usually mixed on site at time of application)	"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes). "Surfacing ACM" means surfacing material which contains more than 1% asbestos. NOTE: OSHA/Cal-OSHA do not classify skim coat, taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.
MISC.	All other ACM, including classify taping mud, floor tile mastic, stucco, leveling compound, and hard wall plasters or wall texturing as surfacing.

NESHAPS Categories for Asbestos (used by Air Quality Management Districts for Renovation and Demolition)

Category I	Cat I Non-friable Asbestos Containing Material(ACM) refers to asbestos containing packing, gaskets, resilient floor covering, Galbestos, and asphalt roofing products containing more than 1% asbestos.
Category II	Cat II Non-friable Asbestos-Containing Material (ACM) is any material that is not Cat I that contains greater than 1% asbestos.
RACM	"Regulated Asbestos-Containing Material." – Friable manufactured asbestos material (ACM) or a Category I non-friable ACM that has become friable OR a Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting or abrading OR Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations. RACM should be removed prior to renovation or demolition.

Characterization of Asbestos Containing Materials

Material	Estimated Quantity	TSI	Surfacing	Misc	RACM	Cat I	Cat II
Floor Tile – Pump House	80 sq/ft			X			X
Vinyl Floor Tile – Pump House	80 sq/ft			X	X		
Roofing Debris Mastic – Garage	2 Cubic Yards			X		X	

Please Note: The above estimated quantity is only an estimate. It is up to the contractor to take accurate measurements before bidding on this project.

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AIHA/ELLAP 100527, ISO/IEC 17025, NVLAP 101150-0, VELAP 460135, NYELAP/NELAC 11413

LABORATORY ANALYSIS REPORT

Asbestos Identification by EPA Method[1] 600/R-93/116

Using SLI A6

ACCOUNT #: 193-12-751
CLIENT: KELLCO SERVICES, INC.
ADDRESS: 3137 DIABLO AVENUE
HAYWARD, CA 94545-2701
PROJECT NAME: 1623 Cindy Way
JOB LOCATION: Pleasantton, CA
PROJECT NO.: 1201-03 - 120105C
PO NO.:

DATE COLLECTED: 1/5/2012
DATE RECEIVED: 1/6/2012
DATE ANALYZED: 1/6/2012
DATE REPORTED: 1/6/2012

SampleType: BULK

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results: Asbestos Fibers	PLM Analysis Results: Other Materials
Shed-M-01	31309348	Shed Entrance S End		
Layer 1:		Roof Shingle Black/Gray, Bituminous/Granular	None Detected	10% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
Shed-M-02	31309349	Shed Entrance N End		
Layer 1:		Roof Shingle Black/Green, Bituminous/Granular	None Detected	10% CELLULOSE FIBER 90% NON FIBROUS MATERIAL
1623-W-03	31309350	Pump House E Wall		
Layer 1:		Stucco Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
1623-W-04	31309351	Pump House S Wall		
Layer 1:		Stucco Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
1623-W-05	31309352	Pump House N Wall		
Layer 1:		Stucco Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL

Total Number of Pages in Report: 5

Results relate only to samples as received by the laboratory. Visit www.slabinc.com for current certifications.

Samples analyzed by the EPA Test Method are subject to the limitations of light microscopy including matrix interference. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. This method has a reporting limit of 1% or greater. Visual estimation contains an inherent range of uncertainty. This report must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other gov't agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results: Asbestos Fibers	PLM Analysis Results: Other Materials
1623-F-06	31309353	Pump House N Floor		
Layer 1:		Concrete Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
1623-F-07	31309354	Pump House S Floor		
Layer 1:		Floor Tile Brown, Organically Bound	4% CHRYSOTILE	96% NON FIBROUS MATERIAL
Layer 2:		Mastic Black, Bituminous	None Detected	100% NON FIBROUS MATERIAL
Layer 3:		Felt Paper Black, Bituminous/Fibrous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
1923-M-08	31309355	Pump House E Floor		
Layer 1:		Drywall White, Powdery	None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
1623-W-09	31309356	Pump House E Wall		
Layer 1:		Paper Brown, Fibrous	None Detected	95% CELLULOSE FIBER 5% NON FIBROUS MATERIAL
Layer 2:		Fiberglass Material Yellow, Fibrous	None Detected	98% MINERAL/GLASS WOOL 2% NON FIBROUS MATERIAL
1623-W-10	31309357	Pump House E Wall		
Layer 1:		Felt Paper Black, Bituminous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
1923-F-11	31309358	Pump House W Floor		
Layer 1:		Vinyl Floor Tile Brown, Organically Bound	4% CHRYSOTILE	96% NON FIBROUS MATERIAL
Layer 2:		Mastic Black, Bituminous	None Detected	100% NON FIBROUS MATERIAL
Layer 3:		Felt Paper Black, Bituminous/Fibrous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL

Total Number of Pages in Report: 5

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results: Asbestos Fibers	PLM Analysis Results: Other Materials
1623-W-12	31309359	Pump House S Wall		
Layer 1:		Mortar Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
Layer 2:		Brick Red, Hard	None Detected	100% NON FIBROUS MATERIAL
1623-W-13	31309360	Pump House SE Wall		
Layer 1:		Mortar Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
Layer 2:		Brick Red, Hard	None Detected	100% NON FIBROUS MATERIAL
1623-F-14	31309361	Pump House E Floor		
Layer 1:		Concrete Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
1623-R-15	31309362	Pump House SE Roof		
Layer 1:		Felt Paper Black, Bituminous/Fibrous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
1623-R-16	31309363	Pump House N Roof		
Layer 1:		Felt Paper Black, Bituminous/Fibrous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
1623-C-17	31309364	Pump House E Ceiling		
Layer 1:		Drywall White, Powdery	None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
1623-C-18	31309365	Pump House SW Ceiling		
Layer 1:		Drywall White, Powdery	None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
Garage-R-19	31309366	Garage Roof SE End		
Layer 1:		Felt Paper Black, Bituminous/Fibrous	None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL

Total Number of Pages in Report: 5

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Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results: Asbestos Fibers	PLM Analysis Results: Other Materials
Layer 2:	Ceramic Tile Gray, Hard		None Detected	100% NON FIBROUS MATERIAL
Garage-R-20	31309367	Garage Roof W End		
Layer 1:	Felt Paper Black, Bituminous/Fibrous		None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
Layer 2:	Ceramic Tile Gray, Hard		None Detected	100% NON FIBROUS MATERIAL
Garage-W-21	31309368	Garage W Wall		
Layer 1:	Felt Paper Black, Bituminous/Fibrous		None Detected	70% CELLULOSE FIBER 30% NON FIBROUS MATERIAL
Garage-M-22	31309369	Garage Roof Debris		
Layer 1:	Mastic Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
Layer 2:	Ceramic Tile Gray, Hard		None Detected	100% NON FIBROUS MATERIAL
Garage-M-23	31309370	Garage Roof Debris		
Layer 1:	Mastic Black, Bituminous		5% CHRYSOTILE	95% NON FIBROUS MATERIAL
Layer 2:	Ceramic Tile Gray, Hard		None Detected	100% NON FIBROUS MATERIAL
Garage-W-24	31309371	Garage NW Wall		
Layer 1:	Drywall White, Powdery		None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
Garage-W-25	31309372	Garage E Wall		
Layer 1:	Drywall White, Powdery		None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL

Total Number of Pages in Report: 5

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Samples analyzed by the EPA Test Method are subject to the limitations of light microscopy including matrix interference. Gravimetric reduction and correlative analyses are recommended for all non-friable, organically bound materials. This method has a reporting limit of 1% or greater. Visual estimation contains an inherent range of uncertainty. This report must not be reproduced except in full with the approval of the lab, and must not be used to claim NVLAP or other gov't agency endorsement.

Client Sample No.	SLI Sample/ Layer ID	Sample Identification/ Layer Name	PLM Analysis Results: Asbestos Fibers	PLM Analysis Results: Other Materials
Garage-C-26	31309373	Garage N Ceiling		
Layer 1:		Drywall White, Powdery	None Detected	4% CELLULOSE FIBER 96% NON FIBROUS MATERIAL
Garage-M-27	31309374	Garage Attic Space		
Layer 1:		Paper Black, Bituminous/Fibrous	None Detected	75% CELLULOSE FIBER 25% NON FIBROUS MATERIAL
Layer 2:		Fiberglass Material Pink, Fibrous	None Detected	98% MINERAL/GLASS WOOL 2% NON FIBROUS MATERIAL
Garage-F-28	31309375	Garage W Floor		
Layer 1:		Concrete Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL
Garage-F-29	31309376	Garage E Floor		
Layer 1:		Concrete Gray, Cementitious	None Detected	100% NON FIBROUS MATERIAL

Analyst: FATIMA ELTAYAR

Reviewed By: Hind Eldanaf, Microscopy Supervisor

Total Number of Pages in Report: 5

Results relate only to samples as received by the laboratory. Visit www.slabinc.com for current certifications.

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	1623 Cindy Way 1623 Cindy Way ~~2 Sheds~~ Pleasanton CA 94566

KELLCO Serv. Job # **1201-03** LAB LOGIN # 120105C

COLLECTED BY: Derrik

COLLECTED DATE Jan. 5. 12

TURN AROUND TIME: (24) 24

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

(PLM) LEAD PAINT LEAD WIPE NON VIABLE MOLD VIABLE MOLD eCOLI OTHER

SAMPLES REC'D 29 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER

WorkOrderKey V : \ 860 \ 860737

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 1 OF 3

KELLCO Serv. Job # **1201-03**
1623 Cindy Way

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
Shed-M-01	Shed Entrance - S. End	blk	debris - roof shingle	
M-02	" - N. End	"	" "	
1623-W-03	Pumps House - E. Wall	grey	stucco	Exterior
W-04	" - S. Wall	↓	↓	"
W-05	" - N. Wall			
F-06	" - N Floor	grey	concrete	
F-07	" - S. Floor	brown/blk	12x12 VFT - felt paper mastic	
M-08	" - E. Wall Floor	Wht	debris - Dry Wall	
W-09	" - E. Wall	brown/yell	paper / fiberglass	

RECEIVED JAN - 6 2012

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	Jan. 5. 12	1400			

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 2 OF 3

KELLCO Serv. Job # 1201-03
1623 Cindy Way

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
1623-W-10	Pumps House - E. wall	blk	felt paper	
F-11	" - W. Floor	brown/blk	12x12 VFT / felt paper / mastic	
W-12	" - S. Wall	grey/red	mortar / brick	exterior
W-13	" - SE wall	"	"	"
F-14	" - E. floor	grey	concrete	
R-15	" - SE Roof	blk	felt paper	
R-16	" - N Roof	"	"	
C-17	" - E. Ceiling	wht	Drey wall	
C-18	" - SW ceiling	"	"	
Garage- R-19	Garage - Roof S.E End	grey blk	felt paper / ceramic	
R-20	" - Roof W End	"	" "	
W-21	- W. Wall	blk	felt paper	Exterior
M-22	- Roof debris ~~pile~~	blk	mastic / ceramic	
M-23	- "	"	"	
W-24	- NW. wall	wht	drywall	
W-25	- E. wall	"	"	
C-26	- N. Ceiling	"	"	
M-27	- attic space	blk/pink	paper / fiberglas	

RECEIVED
JAN - 6 2012

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	Jan. 05. 12				

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE 3 OF 3

KELLCO Serv. Job # 1201-03
1623 Cindy Way

FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
Garage - F - 28	Garage - W. Floor	grey	concrete	
F - 29	- E. Floor	grey	concrete	

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RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	Jan. 05. 12				

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LABORATORY ANALYSIS REPORT

Lead Analysis based on EPA 7000B Method
Using SLI P26 A14

ACCOUNT #: 193-12-753
CLIENT: KELLCO SERVICES, INC.
ADDRESS: 3137 DIABLO AVENUE
HAYWARD, CA 94545-2701
PROJECT NAME: 1623 Cindy Way
JOB LOCATION: Pleasantton, CA
PROJECT NO.: 121-03 - 120105D
PO NO.:

DATE RECEIVED: 1/6/2012
DATE ANALYZED: 1/6/2012
DATE REPORTED: 1/6/2012
Sample Type: PAINT

SLI Sample No.	Client Sample No.	Collection Date	Sample Description	Sample Wt (mg)	Total Lead (µg)*	Lead Conc (% by wt)	Lead Conc PPM
31309439	Shed-Pb-01	1/5/2012	Exterior Wall Trailer	346	8,247.5	2.384	23,837
31309440	1623-Pb-02	1/5/2012	Exterior Wall	337	2,456.1	0.729	7,288
31309441	Garage-Pb-03	1/5/2012	Exterior Wall	304	73.4	0.024	241

Analysis Run ID: 49290

Analyst: **BRITTANY STONE**
Total Number of Pages In Report: 1
Results relate only to samples as received by the laboratory.

Reviewed By **Derek L. Jackson, Analyst**
Visit www.slabinc.com for current certifications.

*Minimum Reporting Limit: 10.0 µg. Lead Based Paint contains 0.5% lead by weight per Federal statute. The OSHA Lead in Construction Standard, 29 CFR 1926.62, is invoked if any lead is present in the sample. Lead-free paint is defined as >0.009% by weight (CPSC). *Data precision justifies 2 significant figures. All internal QC parameters were met. Unusual sample conditions, if any, are described.*

143-12-753

CLIENT	JOBSITE
ENGEO Inc. 2010 Crow Canyon Place 250 San Ramon CA 94583-4634	1623 Cindy Way 1623 Cindy Way ~~2 Sheds~~ Pleasanton CA 94566

KELLCO Serv. Job # **1201-03** LAB LOGIN # 120105

COLLECTED BY: Derrik

COLLECTED DATE 12 Jan. 05. 12

TURN AROUND TIME: (24) 24

RESULTS NEEDED BY

CIRCLE TYPE OF BULK ANALYSIS

PLM **LEAD PAINT** **LEAD WIPE** **NON VIABLE MOLD** **VIABLE MOLD** **eCOLI** **OTHER**

SAMPLES REC'D 3 ANALYZE TO FIRST POSITIVE YES NO

REPORT RESULTS TO PROJECT MANAGER: Tim Cannard

NOTES & COMMENTS:

CHAIN OF CUSTODY & SAMPLE SUBMITAL FORM PAGE ____ OF ____

KELLCO Serv. Job # **1201-03**
1623 Cindy Way

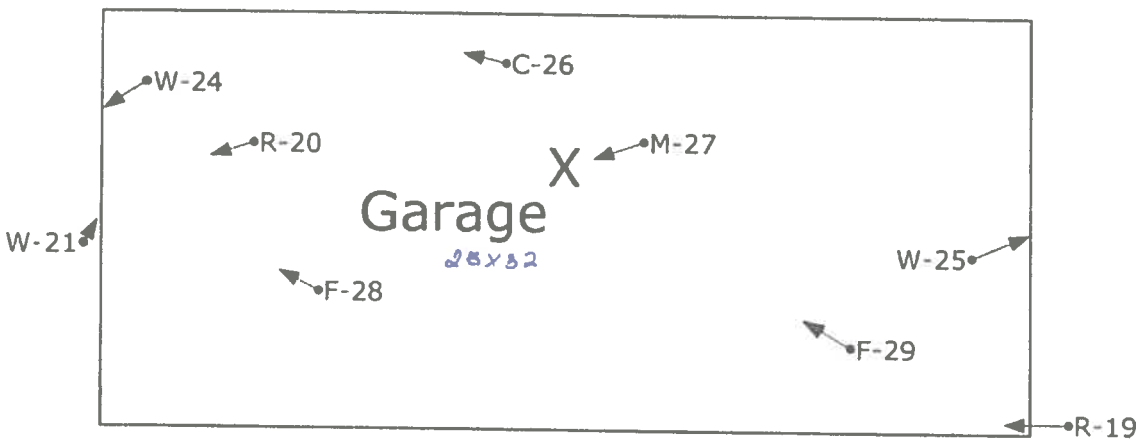
FIELD NUMBER	LOCATION (bldg, rm#, area)	COLOR	MATERIAL or SUBSTRATE (ft w/ size, mastic, tjc, etc.)	NOTES: Like condition, damage, quantity, inside what, beneath what? direction in building (N,S,E,W) etc.)
Shed - Pb - 01	Exterior - Wall trailer	multi	paint on metal	Exterior
1623 - Pb - 02	" - Wall	wht	paint on Wood	"
Garage - Pb - 03	" - Wall	dark brown	" "	"

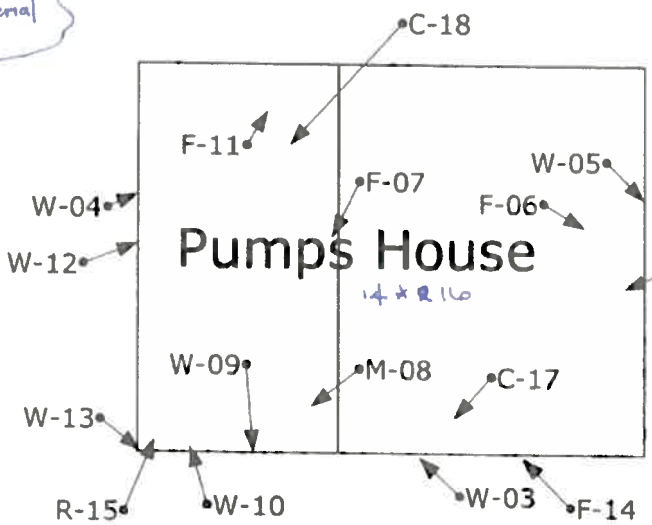
WorkOrderKey
V : 1 860 1 860739

RECEIVED
JAN - 6 2012

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	Jan. 05. 12				

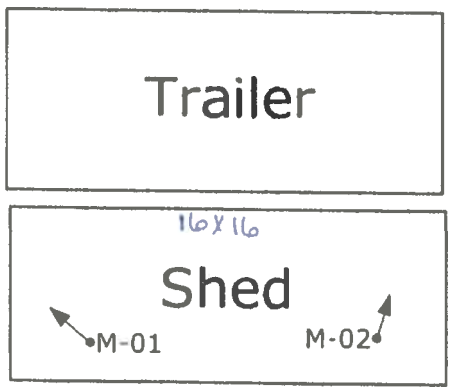
North





North

X-Attic Space



North

01	B1	DRAWN BY Derrik Quach PROJECT NO 1201-03	DESCRIPTION Asbestos & Lead AUDIT 1623 Cindy Way Pleasanton, CA 94566	DATE OF INSPECTION Jan. 05, 12 DATE Jan. 05, 12	KELLCO Services, Inc.	

GreenPoint Rated Checklist: Single Family

The GreenPoint Rated checklist tracks green features incorporated into the home. A home is only GreenPoint Rated if all features are verified by a Certified GreenPoint Rater through Build It Green. GreenPoint Rated is provided as a public service by Build It Green, a professional non-profit whose mission is to promote healthy, energy and resource efficient buildings in California. The minimum requirements of GreenPoint Rated are: verification of 50 or more points; Earn the following minimum points per category: Energy (30), Indoor Air Quality/Health (5), Resources (6), and Water (9); and meet the prerequisites A.2.a, H10a., J.2., N.1, and Q0.

This checklist accommodates the verification of mandatory CALGreen measures but does not signify compliance unless accepted by enforcing agency. All CALGreen measures within the checklist must be selected as "Yes" or "n/a" for compliance with GreenPoint Rated. Build It Green is not a code enforcement agency.

The criteria for the green building practices listed below are described in the GreenPoint Rated Single Family Rating Manual. For more information please visit www.builditgreen.org/greenpointrated

GreenPointRATED

Total Points Targeted: 58

Single Family New Home 4.2 / 2008 Title 24

Enter Project Name			Point s Achi eved	Com muni ty	Ener gy	IAQ/ Healt h	Reso urces	Wate r	Notes
A. SITE	Community	Energy	Health/IA	Resources	Water			Possible Points				
TBD FALSE FALSE	0				0	1. Protect Topsoil and Minimize Disruption of Existing Plants & Trees						
TBD FALSE FALSE					0	a. Protect Topsoil and Reuse after Construction	0					
						b. Limit and Delineate Construction Footprint for Maximum Protection	0					
						2. Divert/Recycle Job Site Construction Waste (Including Green Waste and Existing Structures)						
Yes TRUE TRUE				Y		a. Required: Divert 50% (by weight) of All Construction and Demolition Waste (Recycling or Reuse) (CA Green Code)	Y					
TBD FALSE FALSE				0		b. Divert 100% of Asphalt and Concrete and 65% (by weight) of Remaining Materials	0					
TBD FALSE FALSE				0		c. Divert 100% of Asphalt and Concrete and 80% (by weight) of Remaining Materials	0					
						3. Use Recycled Content Aggregate (Minimum 25%)						
TBD FALSE FALSE				0		a. Walkway and Driveway Base	0					
TBD FALSE FALSE				0		b. Roadway Base	0					
TBD FALSE FALSE	0					4. Cool Site: Reduce Heat Island Effect On Site	0					
						5. Construction Environmental Quality Management Plan, Duct Sealing, and Pre-Occupancy Flush-Out [*This credit is a requirement associated with J4: EPA IAP]						
Yes TRUE TRUE			1			a. Duct openings and other related air distribution component openings shall be covered during construction. (CA Green Code Equivalent)	1					
TBD FALSE FALSE			0			b. Full environmental quality management plan and pre-occupancy flush out is conducted (Prerequisite is A5a)	0					
						Total Points Available in Site = 12	1					
B. FOUNDATION	Community	Energy	Health/IA	Resources	Water			Possible Points				
TBD FALSE FALSE				0		1. Replace Portland Cement in Concrete with Recycled Fly Ash and/or Slag (Minimum 20%)	0					
TBD FALSE FALSE				0		2. Use Frost-Protected Shallow Foundation in Cold Areas (CEC Climate Zone 16)	0					
TBD FALSE FALSE			0			3. Use Radon Resistant Construction [*This credit is a requirement associated with J4: EPA IAP]	0					
TBD FALSE FALSE				0		4. Install a Foundation Drainage System [*This credit is a requirement associated with J4: EPA IAP]	0					
TBD FALSE FALSE			0			5. Moisture Controlled Crawlspace [*This credit is a requirement associated with J4: EPA IAP]	0					
						6. Design and Build Structural Pest Controls						
Yes TRUE TRUE				1		a. Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections	1					
TBD FALSE FALSE				0		b. All Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation	0					
						Total Points Available in Foundation = 12	1					
C. LANDSCAPE	Community	Energy	Health/IA	Resources	Water			Possible Points				
0% TRUE TRUE						*Enter in the % of landscape area. (Projects with less than 15% of the total site area (i.e. total lot size) as landscape area are capped at 6 points for the following measures: C1 through C7 and C9 through C11*						
TBD FALSE FALSE						0 1. Group Plants by Water Needs (Hydrozoning)	0					
TBD FALSE FALSE						2. Mulch All Planting Beds to the Greater of 3 Inches or Local Water Ordinance Requirement	0					
						0 3. Construct Resource-Efficient Landscapes						
TBD FALSE FALSE						0 a. No Invasive Species Listed by Cal-IPC Are Planted	0					
TBD FALSE FALSE				0		b. No Plant Species Will Require Shearing	0					
TBD FALSE FALSE						c. 75% of Plants Are Drought Tolerant, California Natives or Mediterranean Species or Other Appropriate Species	0					
						0 4. Minimize Turf in Landscape Installed by Builder						
TBD FALSE FALSE						a. Turf Shall Not Be Installed on Slopes Exceeding 10% and No Overhead Sprinklers	0					
						0 Installed in Areas Less than 8 Feet Wide	0					
TBD 0 0						0 b. Turf is Small Percentage of Landscaped Area (2 Points for ≤25%, 4 Points for ≤10%)	0					
TBD FALSE FALSE	0	0				0 5. Plant Shade Trees	0					
FALSE						0 6. Install High-Efficiency Irrigation Systems						
TBD FALSE FALSE						0 a. System Uses Only Low-Flow Drip, Bubblers, or Sprinklers	0					
TBD FALSE FALSE						0 b. System Has Smart (Weather-Based) Controller (CALGreen Code if ≥ 1K sq. ft. of turf)	0					
TBD FALSE FALSE						0 7. Incorporate Two Inches of Compost In the Top 6 to 12 Inches of Soil	0					
						0 8. Rain Water Harvesting System						
TBD FALSE FALSE						0 a. Cistern(s) is Less Than 750 Gallons	0					
TBD FALSE FALSE						0 b. Cistern(s) is 750 to 2,500 Gallons	0					
TBD FALSE FALSE						0 c. Cistern(s) is Greater Than 2,500 Gallons	0					
TBD FALSE FALSE						0 9. Irrigation System Uses Recycled Wastewater	0					
TBD FALSE FALSE						0 10. Submetering for Landscape Irrigation	0					
						11. Design Landscape to Meet Water Budget						
TBD FALSE FALSE						a. Install Irrigation System That Will Be Operated at ≤70% Reference ET						
						0 (Prerequisites for Credit are C1. and C2.)	0					
TBD FALSE FALSE						b. Install Irrigation System That Will Be Operated at ≤50% Reference ET						
						0 (Prerequisites for Credit are C1, C2, and C5a or C5b.)	0					
TBD FALSE FALSE						12. Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing A) FSC-Certified Wood, B) Reclaimed, C) Rapidly Renewable, D) Recycled-Content E) Finger-Jointed or F) Local	0					
					0							
TBD FALSE FALSE						13. Reduce Light Pollution by Shielding Fixtures and Directing Light Downward	0					
	0					Total Points Available in Landscape = 35	0					
D. STRUCTURAL FRAME & BUILDING	Community	Energy	Health/IA	Resources	Water			Possible Points				
						1. Apply Optimal Value Engineering						
TBD FALSE FALSE				0		a. Place Joists, Rafters and Studs at 24-Inch On Center	0					
TBD FALSE FALSE				0		b. Door and Window Headers are Sized for Load	0					
TBD FALSE FALSE				0		c. Use Only Cripple Studs Required for Load	0					
						2. Construction Material Efficiencies						
TBD FALSE FALSE				0		a. Wall and Floor Assemblies (Excluding Solid Wall Assemblies) are Delivered Panelized from Supplier (Minimum of 80% Square Feet)	0					
TBD TRUE						b. Modular Components Are Delivered Assembled to the Project (Minimum 25%)	0					
						3. Use Engineered Lumber						
Yes TRUE TRUE				1		a. Engineered Beams and Headers	1					
Yes TRUE TRUE				1		b. Wood I-Joists or Web Trusses for Floors	1					
TBD FALSE FALSE				0		c. Engineered Lumber for Roof Rafters	0					
TBD FALSE FALSE				0		d. Engineered or Finger-Jointed Studs for Vertical Applications	0					
TBD FALSE FALSE				0		e. Oriented Strand Board for Subfloor	0					
TBD FALSE FALSE				0		f. Oriented Strand Board for Wall and Roof Sheathing	0					
TBD FALSE FALSE		0				4. Insulated Headers	0					
						5. Use FSC-Certified Wood						
TBD 0%						a. Dimensional Lumber, Studs and Timber (Minimum 40%)	0					
TBD 0%						b. Panel Products (Minimum 40%)	0					
						6. Use Solid Wall Systems (Includes SIPS, ICFs, & Any Non-Stick Frame Assembly)						
TBD FALSE FALSE				0		a. Floors	0					
TBD FALSE FALSE				0		b. Walls	0					
TBD FALSE FALSE				0		c. Roofs	0					
TBD FALSE FALSE		0				7. Energy Heels on Roof Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall)	0					
						8. Install Overhangs and Gutters						
TBD FALSE FALSE				0		a. Minimum 16-Inch Overhangs and Gutters	0					
TBD FALSE FALSE		0				b. Minimum 24-Inch Overhangs and Gutters	0					
						9. Reduce Pollution Entering the Home from the Garage [*This credit is a requirement associated with J4: EPA IAP]						
TBD FALSE FALSE			0			a. Install Garage Exhaust Fan OR Build a Detached Garage	0					

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TBD	FALSE	FALSE			0		b. Tightly Seal the Air Barrier between Garage and Living Area (Performance Test Required)	0		
							Total Points Available in Structural Frame and Building Envelope = 39	2	Possible Points	
E. EXTERIOR			Community	Energy	Health/IAQ	Resources	Water			
TBD	FALSE	FALSE				0	1. Use Environmentally Preferable Decking	0		
TBD	FALSE	FALSE				0	2. Flashing Installation Techniques Specified and Third-Party Verified ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE				0	3. Install a Rain Screen Wall System	0		
TBD	FALSE	FALSE				0	4. Use Durable and Non-Combustible Siding Materials	0		
TBD	FALSE	FALSE				0	5. Use Durable and Fire Resistant Roofing Materials or Assembly	0		
							Total Points Available in Exterior = 8	0	Possible Points	
F. INSULATION			Community	Energy	Health/IAQ	Resources	Water			
TBD	FALSE	FALSE				0	1. Install Insulation with 75% Recycled Content			
TBD	FALSE	FALSE				0	a. Walls	0		
TBD	FALSE	FALSE				0	b. Ceilings	0		
							c. Floors	0		
							Total Points Available in Insulation = 3	0	Possible Points	
G. PLUMBING			Community	Energy	Health/IAQ	Resources	Water			
							1. Distribute Domestic Hot Water Efficiently (Max. 5 points, G1a. is a Prerequisite for G1b-e)			
Yes	TRUE	TRUE		1			1	a. Insulate All Hot Water Pipes ("This credit is a requirement associated with J4: EPA IAP")	2		
TBD	FALSE	FALSE					0	b. Use Engineered Parallel Plumbing	0		
TBD	FALSE	FALSE					0	c. Use Engineered Parallel Plumbing with Demand Controlled Circulation Loop(s)	0		
TBD	FALSE	FALSE		0			0	d. Use Traditional Trunk, Branch and Twig Plumbing with Demand Controlled Circulation Loop(s)	0		
TBD	FALSE	FALSE		0	0		0	e. Use Central Core Plumbing	0		
								2. Water Efficient Fixtures			
Yes	TRUE	TRUE					3	a. High Efficiency Showerheads ≤2.0 Gallons Per Minute (gpm) at 80 psi (Multiple showerheads shall not exceed maximum flow rates) (CALGreen code if applicable)	3		
Yes	TRUE	TRUE					1	b. High Efficiency Bathroom Faucets ≤ 1.5 gpm at 60psi (CALGreen code)	1		
Yes	TRUE	TRUE					1	c. High Efficiency Kitchen and Utility Faucets ≤1.8 gpm (CALGreen code if applicable)	1		
Yes	TRUE	TRUE					2	3. Install Only High Efficiency Toilets (Dual-Flush or ≤1.28 Gallons Per Flush (gpf)) (CALGreen code if applicable)	2		
								Total Points Available in Plumbing = 12	9	Possible Points	
H. HEATING, VENTILATION & AIR CO			Community	Energy	Health/IAQ	Resources	Water			
								1. Properly Design HVAC System and Perform Diagnostic Testing			
TBD	FALSE	FALSE		0				a. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations (CALGreen code if applicable) ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				b. Test Total Supply Air Flow Rates ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				c. Third Party Testing of Mechanical Ventilation Rates for IAQ (meet ASHRAE 62.2)	0		
								2. Install Sealed Combustion Units ("This credit is a requirement associated with J4: EPA IAP")			
TBD	FALSE	FALSE			0			a. Furnaces	0		
TBD	FALSE	FALSE			0			b. Water Heaters	0		
TBD	FALSE	FALSE		0	0			3. Install High Performing Zoned Hydronic Radiant Heating	0		
TBD	FALSE	FALSE	0					4. Install High Efficiency Air Conditioning with Environmentally Preferable Refrigerants	0		
								5. Design and Install Effective Ductwork	0		
TBD	FALSE	FALSE		0				a. Install HVAC Unit and Ductwork within Conditioned Space	0		
TBD	FALSE	FALSE		0				b. Use Duct Mastic on All Duct Joints and Seams ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				c. Pressure Relieve the Ductwork System ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE			0			6. Install High Efficiency HVAC Filter (MERV 6+) ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE			0			7. No Fireplace OR Install Sealed Gas Fireplace(s) with Efficiency Rating >60% using CSA Standards ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE			0			8. Install ENERGY STAR Bathroom Fans on Timer or Humidistat (CALGreen code if applicable)	0		
								9. Install Mechanical Ventilation System for Cooling (Max. 4 Points)			
TBD	FALSE	FALSE		0				a. Install ENERGY STAR Ceiling Fans & Light Kits in Living Areas & All Bedrooms	0		
TBD	FALSE	FALSE		0				b. Install Whole House Fan (Credit Not Available if H9c Chosen) (CALGreen code if applicable)	0		
TBD	FALSE	FALSE		0				c. Automatically Controlled Integrated System with Variable Speed Control	0		
Yes	FALSE TRUE	TRUE			Y			10. Advanced Mechanical Ventilation for IAQ a. (Required) Compliance with ASHRAE 62.2 Mechanical Ventilation Standards (as adopted in Title 24 Part 6) ("This credit is a requirement associated with J4: EPA IAP")	Y		
TBD	FALSE	FALSE			0			b. Advanced Ventilation Practices (Continuous Operation, Sone Limit, Minimum Efficiency, Minimum Ventilation Rate, Homeowner Instructions)	0		
TBD	FALSE	FALSE			0			c. Outdoor Air Ducted to Bedroom and Living Areas of Home	0		
TBD	FALSE	FALSE			0			11. Install Carbon Monoxide Alarm(s) (or No Combustion Appliances in Living Space and No Attached Garage) ("This credit is a requirement associated with J4: EPA IAP")	0		
								Total Points Available in Heating, Ventilation and Air Conditioning = 27	0	Possible Points	
I. RENEWABLE ENERGY			Community	Energy	Health/IAQ	Resources	Water			
TBD	FALSE	FALSE				0		1. Pre-Plumb for Solar Water Heating	0		
TBD	FALSE	FALSE				0		2. Install Wiring, Conduit for Future Photovoltaic Installation & Provide 200 ft² of South-Facing Roof	0		
0.0%	FALSE	FALSE		0				3. Offset Energy Consumption with Onsite Renewable Generation (Solar PV, Solar Thermal, Wind) *Enter % total energy consumption offset, 1 point per 4% offset*	0		
								Total Available Points in Renewable Energy = 27	0	Possible Points	
J. BUILDING PERFORMANCE			Community	Energy	Health/IAQ	Resources	Water			
TBD	FALSE	FALSE		0				1. Building Envelope Diagnostic Evaluations a. Verify Quality of Insulation Installation & Thermal Bypass Checklist before Drywall ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				b. House Passes Blower Door Test ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				c. Blower Door Results are Max 2.5 ACHso for Unbalanced Systems (Supply or Exhaust) or Max 1.0 ACHso for Balanced Systems (2 Total Points for J1b. and J1c.)	0		
TBD	FALSE	FALSE			0			d. House Passes Combustion Safety Backdraft Test	0		
17%	TRUE	TRUE		34				2. (Required) Building Performance Exceeds Title 24 (Minimum 15%) *(Enter the Percent Better Than Title 24, Points for Every 1% Better Than Title 24)*	34		
TBD	FALSE	FALSE				0		3. Design and Build Near Zero Energy Homes *(Enter number of points, minimum of 2 and maximum of 6 points)*	0		
TBD	FALSE	FALSE			0			4. Obtain EPA Indoor airPlus Certification *(Total 42 points, not including Title 24 performance; read comment)*	0		
TBD	FALSE	FALSE		0				5. Title 24 Prepared and Signed by a CABEC Certified Energy Plans Examiner (CEPE)	0		
TBD	FALSE	FALSE		0				6. Participation in Utility Program with Third Party Plan Review a. Energy Efficiency Program ("This credit is a requirement associated with J4: EPA IAP")	0		
TBD	FALSE	FALSE		0				b. Renewable Energy Program with Min. 30% Better Than Title 24 (High Performing Home)	0		
								Total Available Points in Building Performance = 45+	34	Possible Points	
K. FINISHES			Community	Energy	Health/IAQ	Resources	Water			
TBD	FALSE	FALSE			0			1. Design Entryways to Reduce Tracked-in Contaminants	0		
Yes	TRUE	TRUE			1			2. Use Low-VOC or Zero-VOC Paint (Maximum 3 Points) a. Low-VOC Interior Wall/Ceiling Paints (CALGreen code if applicable) (<50 Grams Per Liter (gpl) VOCs Regardless of Sheen) ("This credit is a requirement associated with J4: EPA IAP")	1		
TBD	FALSE	FALSE			0			b. Zero-VOC Interior Wall/Ceiling Paints (<5 gpl VOCs Regardless of Sheen)	0		
Yes	TRUE	TRUE			2			3. Use Low-VOC Coatings that Meet SCAQMD Rule 1113 (CALGreen code if applicable) ("This credit is a requirement associated with J4: EPA IAP")	2		
Yes	TRUE	TRUE			2			4. Use Low-VOC Caulks, Construction Adhesives and Sealants that Meet SCAQMD Rule 1168 (CALGreen code if applicable)	2		
TBD	FALSE	FALSE				0		5. Use Recycled-Content Paint	0		
	FALSE							6. Use Environmentally Preferable Materials for Interior Finish A) FSC-Certified Wood. B) Reclaimed. C) Rapidly Renewable. D) Recycled-Content or E) Finger-Jointed F) Local			
TBD	FALSE	2				0		a. Cabinets (50% Minimum)	0		
TBD	FALSE	1				0		b. Interior Trim (50% Minimum)	0		
≥80%	TRUE	2				2		c. Shelving (50% Minimum)	2		
TBD	FALSE	1				0		d. Doors (50% Minimum)	0		
TBD	FALSE	1				0		e. Countertops (50% Minimum)	0		
Yes	TRUE	TRUE			0			7. Reduce Formaldehyde in Interior Finish – Meet Current CARB Airborne Toxic Control Measure (ATCM) for Composite Wood Formaldehyde Limits by Mandatory Compliance Dates (CALGreen code if applicable) ("This credit is a requirement associated with J4: EPA IAP")	Y		
								8. Reduce Formaldehyde in Interior Finish - Exceed Current CARB ATCM for Composite Wood Formaldehyde Limits Prior to Mandatory Compliance Dates			
TBD	FALSE	FALSE			0			a. Doors (90% Minimum)	0		

TBD	FALSE	FALSE			0			b. Cabinets & Countertops (90% Minimum)	0		
TBD	FALSE	FALSE			0			c. Interior Trim and Shelving (90% Minimum)	0		
TBD	FALSE	FALSE			0			9. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <72ppb	0		
								Total Available Points in Finishes = 27	7		
L. FLOORING			Community	Energy	Health/IAQ	Resources	Water			Possible Points	
TBD	TRUE	FALSE				FALSE		1. Use Environmentally Preferable Flooring (Minimum 15% Floor Area) A) FSC-Certified Wood, B) Reclaimed or Refinished, C) Rapidly Renewable, D) Recycled-Content, E) Exposed Concrete, F) Local. *Flooring Adhesives Must Meet SCAQMD Rule 1168 for VOCs.*	0		
TBD	FALSE	FALSE		0				2. Thermal Mass Floors (Minimum 50%)	0		
TBD	FALSE	FALSE			0			3. Low Emitting Flooring (Section 01350, CRI Green Label Plus, Floorscore [*This credit is a requirement associated with J4: EPA IAP]	0		
Yes	TRUE	FALSE						4. All carpet and 50% of Resilient Flooring is low emitting. (CAL Green code if applicable)	Y		
								Total Available Points in Flooring = 8	0		
M. APPLIANCES AND LIGHTING			Community	Energy	Health/IAQ	Resources	Water			Possible Points	
TBD	FALSE	FALSE		0			0	1. Install ENERGY STAR Dishwasher (Must Meet Current Specifications)	0		
TBD	FALSE	FALSE		0			0	2. Install ENERGY STAR Clothes Washer a. Meets ENERGY STAR and CEE Tier 2 Requirements (Modified Energy Factor 2.0, Water Factor 8.0 or less)	0		
TBD	FALSE	FALSE					0	b. Meets ENERGY STAR and CEE Tier 3 Requirements (Modified Energy Factor 2.2, Water Factor 4.5 or less)	0		
TBD	FALSE	FALSE		0				3. Install ENERGY STAR Refrigerator a. ENERGY STAR Qualified & < 25 Cubic Feet Capacity	0		
TBD	FALSE	FALSE		0				b. ENERGY STAR Qualified & < 20 Cubic Feet Capacity	0		
TBD	FALSE	FALSE				0		4. Install Built-In Recycling Center or Composting Center a. Built-In Recycling Center	0		
TBD	FALSE	FALSE				0		b. Built-In Composting Center	0		
TBD	FALSE	FALSE		0				5. Install High-Efficacy Lighting and Design Lighting System a. Install High-Efficacy Lighting	0		
TBD	FALSE	FALSE		0				b. Install a Lighting System to IESNA Footcandle Standards or Hire Lighting Consultant	0		
								Total Available Points in Appliances and Lighting = 13	0		
N. OTHER			Community	Energy	Health/IAQ	Resources	Water			Possible Points	
Yes	TRUE	Yes				Y		1. Required: Incorporate GreenPoint Rated Checklist in Blueprints [*This credit is a requirement associated with J4: EPA IAP]	Y	H	
TBD	FALSE	FALSE	0					2. Pre-Construction Kick-Off Meeting with Rater and Subs	0		
TBD	FALSE	FALSE	0					3. Homebuilder's Management Staff are Certified Green Building Professionals	0		
								4. Develop Homeowner Education			
Yes	TRUE	TRUE		1			1	a. Develop Homeowner Manual of Green Features/Benefits (CAL Green code if applicable) [*This credit is a requirement associated with J4: EPA IAP]	2		
TBD	FALSE	FALSE			0			b. Conduct Educational Walkthroughs (Prerequisite is N4a) [*This credit is a requirement associated with J4: EPA IAP]	0		
TBD	FALSE	FALSE		0				5. Install a Home System Monitor OR Participate in a Time-of-Use Pricing Program	0		
								Total Available Points in Other = 6	2		
O. COMMUNITY DESIGN & PLANNING			Community	Energy	Health/IAQ	Resources	Water			Possible Points	
Yes	TRUE	TRUE	1			1		1. Develop Infill Sites a. Project is an Urban Infill Development	2		
TBD	FALSE	FALSE	0					b. Home(s)/Development is Located within 1/2 Mile of a Major Transit Stop	0		
TBD	FALSE	FALSE	0					2. Build on Designated Brownfield Site	0		
TBD	FALSE	FALSE	0			0		3. Cluster Homes & Keep Size In Check a. Cluster Homes for Land Preservation	0		
TBD	FALSE	FALSE	0			0		b. Conserve Resources by Increasing Density (10 Units per Acre or Greater)	0		
		0				0		c. Home Size Efficiency	0		
?720								i. Enter Average Unit Square Footage			
4								ii. Enter Average Number of Bedrooms/Unit			
	FALSE	0						4. Design for Walking & Bicycling a. Site Has Pedestrian Access Within 1/2 Mile of Community Services TIER 1: Enter Number of Services Within 1/2 Mile 1) Day Care 2) Community Center 3) Public Park 4) Drug Store 5) Restaurant 6) School 7) Library 8) Farmer's Market 9) After School Programs 10) Convenience Store Where Meat & Produce are Sold			
	FALSE							TIER 2: Enter Number of Services Within 1/2 Mile 1) Bank 2) Place of Worship 3) Laundry/Cleaners 4) Hardware 5) Theater/Entertainment 6) Fitness/Gym 7) Post Office 8) Senior Care Facility 9) Medical/Dental 10) Hair Care 11) Commercial Office or Major Employer 12) Full Scale Supermarket			
		0						i. 5 Services Listed Above (Tier 2 Services Count as 1/2 Service Value)	0		
		0						ii. 10 Services Listed Above (Tier 2 Services Count as 1/2 Service Value)	0		
TBD	FALSE	FALSE	0					b. Development is Connected with A Dedicated Pedestrian Pathway to Places of Recreational Interest Within 1/4 mile	0		
TBD	FALSE	FALSE	0					c. Install Traffic Calming Strategies (Minimum of Two): - Designated Bicycle Lanes are Present on Roadways; - Ten-Foot Vehicle Travel Lanes; - Street Crossings Closest to Site are Located Less Than 300 Feet Apart; - Streets Have Rumble Strips, Bulbouts, Raised Crosswalks or Refuge Islands	0		
								5. Design for Safety & Social Gathering			
TBD	FALSE	FALSE	0					a. All Home Front Entrances Have Views from the Inside to Outside Callers	0		
TBD	FALSE	FALSE	0					6. Cool Site: Reduce Heat Island Effect On Site	0		
TBD	FALSE	FALSE	0					c. Orient Porches (min. 100sf) to Streets and Public Spaces	0		
TBD	FALSE	FALSE	0					d. Development Includes a Social Gathering Space	0		
								6. Design for Diverse Households (6a. is a Prerequisite for 6b. and 6c.)			
TBD	FALSE	FALSE	0					a. All Homes Have At Least One Zero-Step Entrance	0		
TBD	FALSE	FALSE	0					b. All Main Floor Interior Doors & Passageways Have a Minimum 32-Inch Clear Passage Space	0		
TBD	FALSE	FALSE	0					c. Locate Half-Bath on the Ground Floor	0		
TBD	FALSE	FALSE	0					d. Provide Full-Function Independent Rental Unit	0		
								Total Achievable Points in Community Design & Planning = 35	2		
P. INNOVATION			Community	Energy	Health/IAQ	Resources	Water			Possible Points	
								A. Site 1. Stormwater Control: Prescriptive Path (Maximum of 3 Points, Mutually Exclusive with PA2.)			
TBD	FALSE	FALSE	0					a. Use Permeable Paving for 25% of Driveways, Patios and Walkways	0		
TBD	FALSE	FALSE	0					b. Install Bio-Retention and Filtration Features	0		
TBD	FALSE	FALSE	0					c. Route Downspout Through Permeable Landscape	0		
TBD	FALSE	FALSE	0					d. Use Non-Leaching Roofing Materials	0		
TBD	FALSE	FALSE	0					e. Include Smart Street/Driveway Design	0		
TBD	FALSE	FALSE	0					2. Stormwater Control: Performance Path (Mutually Exclusive with PA1). Perform Soil Percolation Test and Capture and Treat 85% of Total Annual Runoff	0		
								C. Landscape			
TBD	FALSE	FALSE					0	1. Meet Local Landscape Program Requirement	0		
								D. Structural Frame & Building Envelope			
								1. Design, Build and Maintain Structural Pest and Rot Controls			
TBD	FALSE	FALSE				0		a. Locate All Wood (Siding, Trim, Structure) At Least 12" Above Soil	0		
TBD	FALSE	FALSE				0		b. All Wood Framing 3 Feet from the Foundation is Treated with Borates (or Use Factory-Impregnated Materials) OR Walls are Not Made of Wood	0		
TBD	FALSE	FALSE			0	0		2. Use Moisture Resistant Materials in Wet Areas: Kitchen, Bathrooms, Utility Rooms, and Basements [*This credit is a requirement associated with J4: EPA IAP]	0		
								E. Exterior			
TBD	FALSE	FALSE	0	0				1. Vegetated Roof (Minimum 25%)	0		
								G. Plumbing			
TBD	FALSE	FALSE					0	1. Greywater Pre-Plumbing (Includes Washing Machine at Minimum)	0		
TBD	FALSE	FALSE					0	2. Greywater System Operational (Includes Washing Machine at Minimum)	0		
TBD	FALSE	FALSE					0	3. Innovative Wastewater Technology (Constructed Wetland, Sand Filter, Aerobic System)	0		
TBD	FALSE	FALSE					0	4. Composting or Waterless Toilet	0		
TBD	FALSE	FALSE		0				5. Install Drain Water Heat-Recovery System	0		
TBD	FALSE	FALSE		0				6. Install a Hot Water Desuperheater	0		
								H. Heating, Ventilation, and Air Conditioning			
TBD	FALSE	FALSE			0			1. Humidity Control Systems (Only in California Humid/Marine Climate Zones 1,3,5,6,7) [*This credit is a requirement associated with J4: EPA IAP]	0		
TBD	FALSE	FALSE		0				2. Design HVAC System to Manual T for Register Design	0		
								K. Finishes			
TBD	FALSE	FALSE				0		1. Materials Meet SMaRT Criteria *(Select the number of points, up to 5 points)*	0		
								N. Other			
TBD	FALSE	FALSE				0		1. Detailed Durability Plan and Third-Party Verification of Plan Implementation	0		
								2. Educational Signage of Project's Green Features			
TBD	FALSE	FALSE	0					a. Promotion of Green Building Practices	0		
TBD	FALSE	FALSE	0					b. Installed Green Building Educational Signage	0		
								3. Innovation. List innovative measures that meet green building objectives. Enter in the number of points in each category for a maximum of 4 points for the measure in the blue cells. Points achieved column will be automatically fill in based on the sum of the points in each category. Points and measures will be evaluated by Build It Green.			
TBD	FALSE	FALSE	0	0	0	0	0	Innovation: Enter up to 4 Points at right. Enter description here	0		

TBD	FALSE	FALSE	0	0	0	0	0	Innovation: Enter up to 4 Points at right. Enter description here	0	
TBD	FALSE	FALSE	0	0	0	0	0	Innovation: Enter up to 4 Points at right. Enter description here	0	
TBD	FALSE	FALSE	0	0	0	0	0	Innovation: Enter up to 4 Points at right. Enter description here	0	
TBD	FALSE	FALSE	0	0	0	0	0	Innovation: Enter up to 4 Points at right. Enter description here	0	
								Total Achievable Points in Innovation = 33+	0	Possible Points
Q. CALIFORNIA CALGreen CODE										
No	FALSE	FALSE						Home meets all applicable CAL Green measures listed in above Sections A - P of the GreenPoint Rated checklist.	N	P
								The following measures are mandatory in the CALGreen code and do not earn points in the GreenPoint Rated Checklist, but have been included in the Checklist for the convenience of jurisdictions.		
								The GreenPoint Rater is not a code enforcement official. The measures in this section may be verified by the GreenPoint Rater at their own discretion and/or discretion of the building official.		
TBD	FALSE	FALSE						1. CALGreen 4.106.2 Storm water management during construction	N	
TBD	FALSE	FALSE						2. CALGreen 4.106.3 Design for surface water drainage away from buildings	N	
TBD	FALSE	FALSE						3. CALGreen 4.303.1 As an alternative to perscriptive compliance, a 20% reduction in baseline water use shall be demonstrated through calculation	N	
TBD	FALSE	FALSE						4. CALGreen 4.406.1 Joints and openings. Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected	N	
TBD	FALSE	FALSE						5. CALGreen4.503.1 Gas fireplace shall be a direct-vent sealed-combustion type. Woodstove or pellet stove shall comply with US EPA Phase II emission limits	N	
TBD	FALSE	FALSE						6. CALGreen 4.505.2 Vapor retarder and capillary break is installed at slab on grade foundations	N	
TBD	FALSE	FALSE						7. CALGreen 4.505.3 19% moisture content of building framing materials	N	
TBD	FALSE	FALSE						8. CALGreen 702.1 HVAC system installers are trained and certified in the proper installation of HVAC systems.	N	
								Total Achievable Points in California Green Code = 0	0	
								Total Available Points in Specific Categories		35 96+ 44 110 56
								Minimum Points Required in Specific Categories	50	0 30 5 6 9
								TOTAL	58	

Project has not yet met the following recommended minimum requirements: