Exhibit D

MINUTES
Del Monte Land Use Advisory Committee
Thursday, October 15, 2020

1. **Meeting called to order by** Lori Lietzke **at** 3:00 pm

2. **Roll Call**

Members Present:
Lori Lietzke, Kim Caneer, Ned Van Roekel, Maureen Lyon, Bart Bruno, Carol Church, Rick Verbanec (7)

Members Absent:
Parikh Kamlesh (1)

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LAND USE DIVISION

3. **Approval of Minutes:**

A. **September 3, 2020** minutes

Motion: Carol Church (LUAC Member's Name)

Second: Rick Verbanec (LUAC Member's Name)

Ayes: Lietzke, Caneer, Van Roekel, Lyon, Bruno, Church, Verbanec (7)

Noes: 0

Absent: Kamlesh (1)

Abstain: 0

4. **Public Comments:** The Committee will receive public comment on non-agenda items that are within the purview of the Committee at this time. The length of individual presentations may be limited by the Chair.

None

5. **Scheduled Item(s)**

6. **Other Items:**

A) Preliminary Courtesy Presentations by Applicants Regarding Potential Projects

None

B) Announcements

None

7. **Meeting Adjourned:** 3:36 pm

Minutes taken by: Kim Caneer, recording Secretary

Action by Land Use Advisory Committee
Project Referral Sheet

Monterey County RMA Planning
1441 Schilling Place 2nd Floor
Salinas CA 93901
(831) 755-5025

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RESOURCE MANAGEMENT AGENCY
LAND USE DIVISION

Advisory Committee: Del Monte Forest

1\. **Project Name:** ALLEN JOHN O

File Number: PLN200051

Project Location: 1155 SOMBRIA LN PEBBLE BEACH

Assessor's Parcel Number(s): 008-281-023-000

Project Planner: JOE SIDOR

Area Plan: DEL MONTE FOREST LAND USE PLAN

Project Description: Combined Development Permit consisting of: 1) Coastal Administrative Permit and Design Approval to allow the partial demolition and remodel of the existing single family dwelling, including the conversion of an existing 559 square foot garage into habitable space and the addition of 988 square feet; and the construction of a 1,535 square foot detached garage, a 304 square foot office and a 3,583 square foot storage basement; and 2) Coastal Development Permit to allow development within 750 feet of known archaeological resources.

Was the Owner/Applicant/Representative present at meeting? **YES** ____ **NO** X

(Please include the names of the those present)

Joe Sidor announced to DMF LUAC that applicant has requested a continuance of hearing to November 5, 2020;

Meeting due to additional information needed

Was a County Staff/Representative present at meeting? Joe Sidor **(Name)**

PUBLIC COMMENT: None

Name	**Site Neighbor?**		**Issues / Concerns (suggested changes)**
	YES	**NO**	

LUAC AREAS OF CONCERN

Concerns / Issues (e.g. site layout, neighborhood compatibility; visual impact, etc)	Policy/Ordinance Reference (If Known)	Suggested Changes - to address concerns (e.g. relocate; reduce height; move road access, etc)
N/A		

ADDITIONAL LUAC COMMENTS

N/A

RECOMMENDATION:

Motion by: Maureen Lyon (LUAC Member's Name)

Second by: Ned Van Roekel (LUAC Member's Name)

___ Support Project as proposed

___ Support Project with changes

X Continue the Item

Reason for Continuance: Applicant needs to provide additional information (not revealed what information to LUAC)

Continue to what date: November 5, 2020

Ayes: Lietzke, Caneer, Van Roekel, Lyon, Bruno, Church, Verbanec (7)

Noes: 0

Absent: Kamlesh (1)

Abstain: 0

Action by Land Use Advisory Committee
Project Referral Sheet

Monterey County RMA Planning
1441 Schilling Place 2nd Floor
Salinas CA 93901
(831) 755-5025

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OCT 19 2020
MONTEREY COUNTY
RESOURCE MANAGEMENT AGENCY
LAND USE DIVISION

Advisory Committee: Del Monte Forest

2.

Project Name: TEH ROBERT S & AURORA L TRS
File Number: PLN200191
Project Location: 1031 RODEO RD PEBBLE BEACH
Assessor's Parcel Number(s): 007-322-005-000
Project Planner: SON PHAM-GALLARDO
Area Plan: GREATER MONTEREY PENINSULA AREA PLAN
Project Description: Design Approval to allow the demolition of a 2,461 square foot two-story single family dwelling and attached 431 square foot garage and construction of a 2,801 square foot two-story single family with an attached 554 square foot garage.

Was the Owner/Applicant/Representative present at meeting? **YES** X **NO** ____

(Please include the names of the those present)

James Newhall Smith, Architect

Was a County Staff/Representative present at meeting? Joe Sidor **(Name)**

PUBLIC COMMENT: None

Name	**Site Neighbor?**		**Issues / Concerns (suggested changes)**
	YES	**NO**	

LUAC AREAS OF CONCERN

Concerns / Issues (e.g. site layout, neighborhood compatibility; visual impact, etc)	Policy/Ordinance Reference (If Known)	Suggested Changes - to address concerns (e.g. relocate; reduce height; move road access, etc)
LUAC member Carol Church asked for clarifications regarding grading to prevent further water intrusion on neighborhood properties.		

ADDITIONAL LUAC COMMENTS

- LUAC member Ned Van Roekel commented on current building codes in Del Monte Forest for roof materials should be rated Class A, non-flammable due to California's Fire Code. DMF LUAC recommends all new construction/remodeling comply with the current Class A roofing materials

RECOMMENDATION:

Motion by: Kim Caneer (LUAC Member's Name)

Second by: Rick Verbanec (LUAC Member's Name)

X Support Project as proposed – with the recommendation of a non-flammable material for the roof

___ Support Project with changes

___ Continue the Item

Reason for Continuance: __________

Continue to what date: __________

Ayes: Lietzke, Caneer, Van Roekel, Lyon, Bruno, Church, Verbanec (7)

Noes: 0

Absent: Kamlesh (1)

Abstain: 0

Received by Monterey County
Planning on October 12, 2020.

HORAN | LLOYD

ANTHONY T. KARACHALE
STEPHEN W. DYER
MARK A. BLUM
JAMES J. COOK
ELIZABETH C. GIANOLA
PAMELA H. SILKWOOD
VIRGINIA E. HOWARD
MARK E. MYERS
KRISTIN M. DEMARIA
NICHOLAS W. SMITH

Of Counsel
ROBERT ARNOLD INC.
DEBORAH S. HOWARD

FRANCIS P. LLOYD (Retired)
JEROME F. POLITZER (Retired)
LAURENCE P. HORAN
(1929-2012)

HORAN LLOYD
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
26385 Carmel Rancho Blvd., #200
Carmel, CA 93923

Tel: 831.373.4131
Fax: 831.373.8302
horanlegal.com

Pamela H. Silkwood

psilkwood@horanlegal.com

File No. 8287.01

October 9, 2020

RECEIVED
OCT 12 2020
MONTEREY COUNTY
RESOURCE MANAGEMENT AGENCY
LAND USE DIVISION

Via Electronic Mail
Del Monte Forest Land Use Advisory Committee
Attn: Joe Sidor Sidor <SidorJ@co.monterey.ca.us>
Monterey County RMA Planning
1441 Schilling Place South 2nd Floor
Salinas, CA 93901

Re: Combined Development Permit Application PLN200051
1155 Sombria Lane, Pebble Beach

Honorable LUAC Members:

This firm represents Rupert and Maryellie Johnson, owners of the property located at 1159 Sombria Lane, which is located immediately adjacent to the above-referenced project property. This letter to comment on the combined development permit application PLN200051 ("Project") proposed by John Allen.

In summary, the Project raises six substantive issues that would need to be resolved before the application for this Project is allowed to proceed. These are:

(1) Tree removals over time at the Project property constituting invalid "removal of major vegetation" and possibly, prohibited development within an environmentally sensitive habitat area ("ESHA");
(2) The whole of the action was chopped up into smaller projects to avoid scrutiny under the California Environmental Quality Act ("CEQA");
(3) The Project's alteration of the area's drainage pattern has the potential to negatively impact neighboring properties;
(4) The Project increases wildfire hazard by proposing propane tanks in this forest setting;
(5) There is a reasonable possibility of buried cultural resources and consultation with OCEN is required to assess the Project's cultural resource impacts; and

(6) Privacy impact associated with the garage should be remedied by moving the garage further away from the property boundary.

Each of the aforementioned issues are discussed in detail below.

A. Tree Removals Over Time at the Project Property Constitutes Invalid "Removal of Major Vegetation" and Possibly, Prohibited Development Within An ESHA.

A Monterey County approved certified arborist, Joseph Bileci, assessed pine and oak tree removals occurring over time at the Project property through a review of Google Earth images. Mr. Bileci's report, included as **Exhibit A,** noted mature cypress and pine canopies disappearing over time at the Project property. Of particular concern are the tree removals in the same location as the proposed Project. It appears that the tree removals in the southeast corner of the Project property occurred ahead of the Project in an attempt to avoid additional scrutiny.

Such an extensive removal of tree canopies constitutes "development" under the California Coastal Act as "removal of major vegetation". (Public Resources Code §30106.) Removal of mature oaks and pines requires a coastal development permit ("CDP"). Our review in Accela only found two CDP waivers for the removal of three mature pines (CDP Waivers TRM180164 in 2018 and TRM150040 in 2015).

The removed oak and pine woodland/canopies may have been considered ESHA and development within ESHA is prohibited in the Coastal Act. The Del Monte Land Use Plan states, "Determinations of whether ESHA is actually present in the Del Monte Forest in any particular situation must be based on an evaluation of both the resources on the ground and knowledge about the sensitivity of the habitat at the time of development consideration." Because the trees no longer exist and no arborist report is found in Accela, there is no telling if the activities constituted removal of ESHA.

The extensive tree removals is a violation of the Coastal Act and the Del Monte Forest Land Use Plan, and a code enforcement action should be opened for further investigation of the same.

B. The Whole of the Action Was Chopped Up into Smaller Projects to Avoid CEQA Scrutiny.

Since October 9, 2018, the applicant has submitted five (5) discretionary applications to Monterey County. Similar to the tree canopy removals over time, additions, conversions to habitable space, and permeable surfaces have increased over this two-year period. The applications found in Accela for the Project property include the following:

Accela's "Created Date"	**File Number**	**Description**
10/9/2018	DA180342	Addition of a veneer to an existing three foot concrete wall, relocate existing gazebo, relocate existing gate, build 4 garden walls (18 inches) add three timber steps at south side and two stairs at north side, relocate existing 6 foot high solid wood fence at property line add two water fountain, **530 square foot walkway wood deck** and 2 (two) 6 foot freestanding stucco privacy walls.
4/17/2019	DA190125/ 18CP03184/ 18CP03194-REV1	A **32 square foot addition,** a new 288 square foot entry roof, a 253 square foot roof structure, five new skylights, replace wood garage doors with aluminum and glass overhead doors, replace glass block wall with wood framed plaster wall, new doors and windows, addition of doors and windows to an existing single family dwelling; a **12 square foot mechanical room addition** with 1 new skylight, and the removal of the kitchen and cooking facilities at the guesthouse; **a 203 square foot garage conversion to a gym** with the addition of 1 new skylight. **378 sq. ft. expansion** of the pantry, powder, bed & bath 1 south walls, and the great room and dining room north walls.
8/8/2019	DA190250	120 square foot guesthouse interior remodel with an addition of a **12 square foot mechanical room**, 1 new skylight, and the removal of the kitchen and cooking facilities.
12/20/2019	DA190384	**378 square feet addition** to a single family dwelling.
2000	PLN200051	Demolition and remodel of the existing single family dwelling, including the conversion of an existing **559 square foot garage into habitable space** and the addition of 988 square feet; and the construction of a **1,535 square foot detached garage, a 304 square foot office and a 3,583 square foot storage basement**

The whole of the project appears to be a new residential complex, but this larger project was invalidly chopped up into little ones to avoid full environmental disclosure. (See 14 Cal Code Regs §15003(h).) <u>In particularly, the associated tree removals that accompanied the piecemealed development were never fully disclosed.</u>

For purposes of CEQA coverage, a "project" is defined as comprising "the whole of an action" that has the potential to result in a direct or reasonably foreseeable indirect physical change to the environment. (14 Cal Code Regs §15378(a).) Thus, the term "project" refers to the activity for which approval is sought, not to each separate governmental approval that may be required for the activity to occur. (14 Cal Code Regs §15378(c).) Under this definition of a project, the lead agency must describe the project to encompass the entirety of the activity that is proposed for approval. This ensures that all potential impacts of the proposed project will be examined before it is approved. (14 Cal Code Regs §15378(a), (d).)

Under CEQA's definition of a project, although a project may go through several approval stages, the environmental review accompanying the first discretionary approval must evaluate the impacts of the ultimate development authorized by that approval. This prevents applicants from chopping a large project into little ones, each with a minimal impact on the environment, to avoid full environmental disclosure. (See 14 Cal Code Regs §15003(h); *Bozung v LAFCO* (1975) 13 C3d 263, 283.)

Due to the extensive tree removals over time to accommodate the expansion of the structures and permeable surfaces at the Project property, an initial study must be prepared to consider the "whole of the action." An initial study that fails to describe the entire project is fatally deficient under CEQA.

C. The Project's Alteration of the Area's Drainage Pattern Has the Potential to Negatively Impact Neighboring Properties.

The Applicant's Geotechnical Report (**Exhibit B**) warns of the potential harm that could result from the alterations in the drainage patterns by this and past piecemealed projects on the Project property which must be evaluated in an initial study. The Applicant's Geotechnical Report states, in relevant part, as follows:

> *Recent changes to the drainage requirements has the potential to alter drainage patterns. This has been observed to effect structures which have otherwise not been affected or to alter the way they are affected.*

The Geotechnical Report further states,

> *The release of drainage should consider adjacent parcels and structures. A sub-surface dispersal system could be used but may not work well.*

The reason why the Project property's drainage is of particular importance is that free water was encountered at 2.5 feet during the exploratory drilling by Grice Engineering, as stated in the Geotechnical Report. The Geotechnical Report describes the groundwater conditions on the Project property as follows,

> *The depth to free water varies depending on location and lithology with some free water migrating across grade and after incremental weather.*

Yet, despite water being encountered, the Project proposes a basement and the basement area would need constant pumping in order to be kept dry, which will change the drainage pattern and could potentially impact the surrounding properties – particularly, the downslope golf course. The Geotechnical Report recommends,

> *Design and construction of the proposed garage basement or other subsurface structures will need to consider the free groundwater.*

Before the LUAC recommends approval and before the County issues a CDP for this Project, there must be proper engineering design of the drainage system with assurances from a certified engineer that the drainage pattern will not be altered as a result of the Project and that the surrounding properties will be free of any drainage impacts as a result of the Project. Again, an initial study should analyze the alterations in drainage patterns as a result of the whole of the action, not simply just this Project.

D. The Project Increases Wildfire Hazard by Proposing Propane Tanks in This Forest Setting.

The Project property is located in a forest setting and vulnerable to wildfires. Particularly given climate change, all precautions should be taken to reduce fire risk and hazards. The Project proposes propane tanks when other alternatives are available. Propane tanks are known to explode during fires causing significant damages to properties.

The scientific article, *Impact of Wildfires on LPG [liquid petroleum gas, or propane] Tanks* included in **Exhibit C**, makes clear of the hazard:

> *There is evidence that even if a safety zone is respected between the forest and the [propane] tank, the BLEVE [boiling liquid expanding vapor explosion] could occur if fire brands ignite combustible located close to the tank or the house itself.*

In the recent CZU Complex Fire, that wildfire caused a propane tank to explode. Please see the Santa Cruz Sentinel newspaper article included as **Exhibit D**. That article discusses the propane tank explosion as follows:

> *Another neighbor who'd tried to stay fled as propane tanks exploded, and he realized the house was almost certainly gone.*

For the reasons stated above, we respectively request that the propane tanks be removed from the Project.

E. There is a Reasonable Possibility of Buried Cultural Resources and Consultation With OCEN Is Required to Assess the Project's Cultural Resource Impacts.

The Project property is located within 750 feet of known archeological resources and is located in a high sensitivity area. Del Monte Forest Coastal Implementation Plan defines a "High" sensitivity zone as one in which archaeological sites have already been identified in the area based on an understanding or strong evidence that Native Americans lived in and occupied that area. The Del Monte Forest area contains numerous archaeological sites along the shorelines and upland areas, representing several periods of occupation.

Yet, the Project proposes a basement. The California Coastal Commission recently denied a basement for a project in Monterey County by asserting that "there remains the possibility of buried cultural resources being discovered during deep excavation to construct the basement." Similarly here, there is a possibility of buried cultural resources being discovered in this high sensitivity zone.

AB 52 (Stats 2014, ch 532) requires an analysis of tribal cultural resources as a category apart from historical and archeological resources. AB 52 also requires lead agencies to give written notice to California Native American tribes that have requested such notice and that are traditionally and culturally affiliated with the geographic area of a proposed project. (Pub Res C §21080.3.1(d).) For that reason, Louise Miranda Martinez, the Tribal Chairwoman for OCEN, should be contacted to consult on the possibility of tribal resources at the Project property. An initial study should also analyze the potential for cultural resource impacts as a result of the Project.

F. Privacy Impact Associated With the Garage Should be Remedied by Moving the Garage Further Away From the Property Boundary.

My clients are particularly concerned about privacy impact associated with the Project design. Because of the past invalid pine and oak canopy removals and their replacement with a hedge along the property line and given climate change impacts, there is no assurances that the hedge will be maintained and kept alive to protect privacy. For that reason, my clients request that the garage be moved away from their property line by an additional 10 feet.

Thank you for this opportunity to comment on the Project.

Sincerely,

Pamela H. Silkwood

PHS/dkp
Enclosure

4847-1089-1982, v. 2

Exhibit A

JOSEPH E. BILECI JR.
INTERNATIONAL SOCIETY OF ARBORICULTURE
CERTIFIED ARBORIST NUMBER WE-0985A
ISA CERTIFIED TREE RISK ASSESSMENT
POST OFFICE BOX 1029
PACIFIC GROVE, CALIFORNIA 93950
TELEPHONE (831) 277-2604

VIA E-MAIL ONLY

October 9, 2020

Memo to: Pamela Silkwood, Attorney
From: Joseph Bileci Jr., Certified Arborist

RE: 1155 Sombria Lane, Pebble Beach, CA

Dear Ms. Silkwood:

At your request, I have researched the possibility that tree removal has taken place, and the extent of such removal, over the past several years on the property located at 1155 Sombria Lane, Pebble Beach, California. The research was done online, using satellite images on Google Earth and Google Earth Pro, as well as an April 2016 survey by RLS. Based on the research, it is my opinion that several mature trees, primarily Monterey Cypress (Cupressus macrocarpa) and Monterey Pine (Pinus radiata) have been removed on the property since early 2012. In support of this opinion, I have attached four satellite images, including my comments, which images are dated beginning in May 2012 and ending in October 2016. I have also attached a copy (reduced size) of the above-mentioned survey.

May 2012 satellite image: This image shows an abundant tree canopy on the property, largely consisting of Monterey Cypress and Monterey Pine. The foliage of these two species is similar in color, while the foliage of the Monterey Pine is more rounded on the ends, as opposed to the more pointed branch tips of Monterey Cypress. In the lower portion of the image, just to the right of the center, it is possible to see the shadows of the narrow branch tips of the Monterey Cypress. Close to the center of the image is the shadow of a tall, single-trunked Monterey Pine distinguishable by the more rounded branch tips. Where the tree crowns are intermingled, it was not possible to distinguish the Cypress and the Pines with the equipment available, although from the breadth of the tree crowns and their size in comparison to structures, it appears that most of the trees were mature. The approximate canopy lost between the date of this image and the following April 2015 image is delineated in red near the top of this image.

April 2015 satellite image: When compared to the May 2012 image, it is apparent that the portion of the canopy delineated in the previous 2012 image has been lost. The approximate canopy lost between the date of this April 2015 image and the following March 2016 image is delineated in red.

March 2016 satellite image: When compared to the April 2015 image, it is apparent that the portion of the canopy delineated in the previous 2015 image has been lost. The approximate canopy lost between March 2016 and October 2016 is delineated in red near the top of this image. NOTE: Delineated in black near the top of this image is additional canopy lost between the same dates, but these trees appear to be outside the fence and on Pebble Beach Company property.

October 2016 satellite image: When compared to the March 2016 image, it is apparent that the portion of the canopy delineated in red in the March 2016 image has been lost. See the area where the blue tarp is located.

The absence of trees in the above designated locations after March, 2016, appears to be consistent with the April 2016 topographic survey of the property prepared by RLS, which is attached.

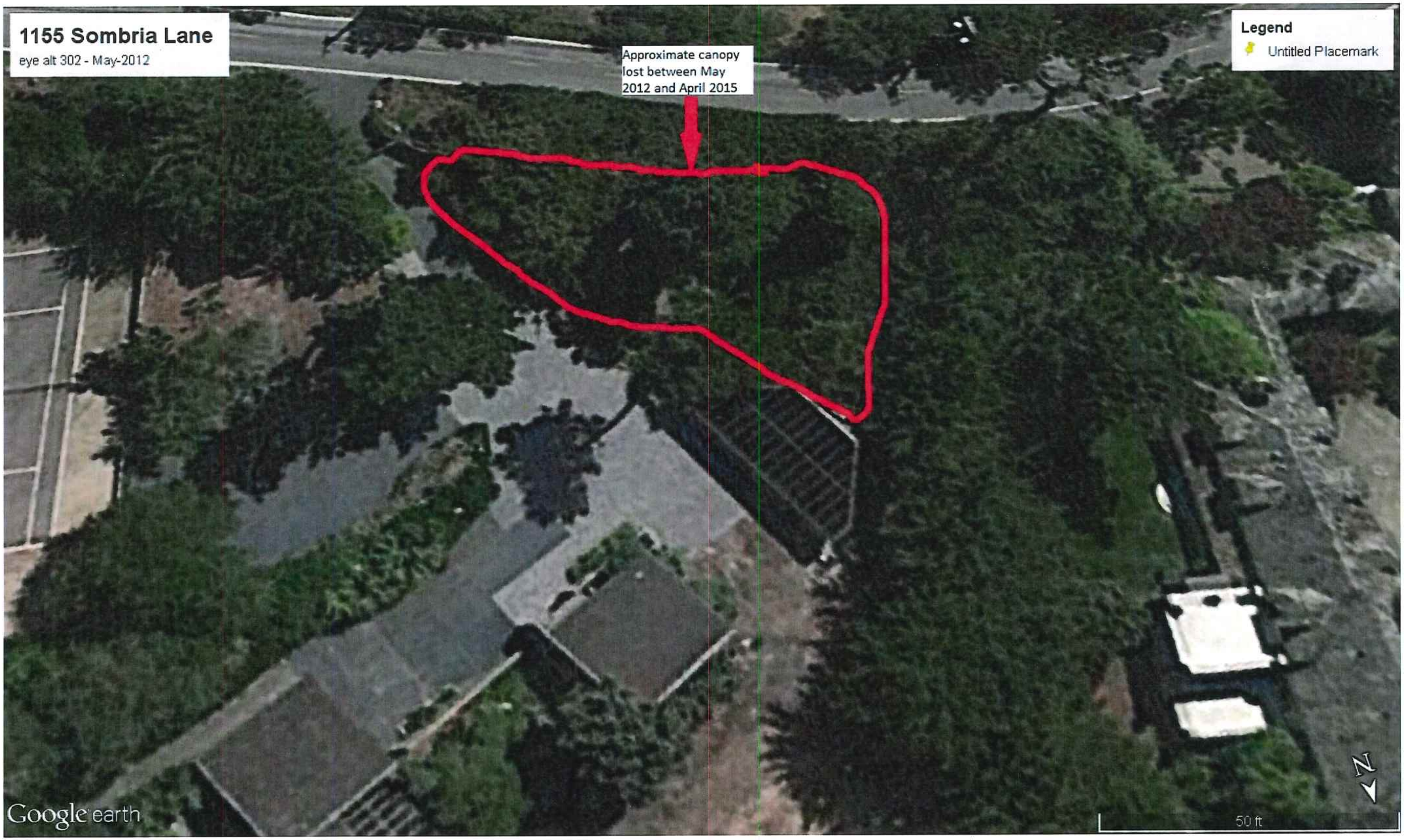
The opinions expressed in this report are based on the arborist's research as described above, as well as his education and experience in working with trees on the Monterey Peninsula for over thirty years. Although the arborist believes the opinions accurately state the facts, the opinions are based on limited evidence available to the arborist. Accordingly, the arborist cannot state the opinions as facts at this time.

Respectfully submitted,

Joseph Bileci Jr.

Joseph Bileci Jr.

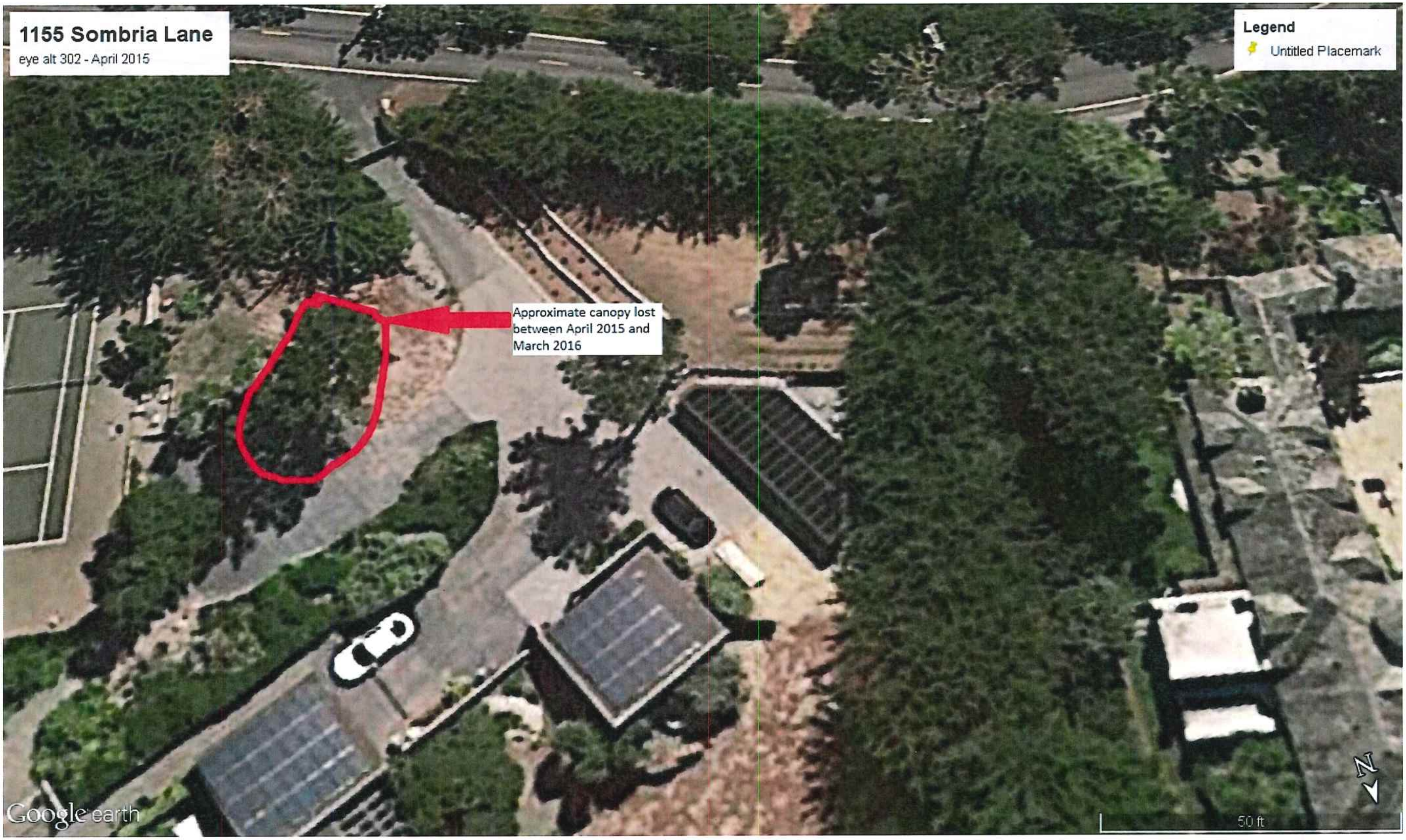
Attachments



1155 Sombria Lane

eye alt 302 - May-2012

Approximate canopy lost between May 2012 and April 2015


1155 Sombria Lane
eye alt 302 - April 2015
Approximate canopy lost between April 2015 and March 2016
Legend
Untitled Placemark
Google earth
50 ft
N

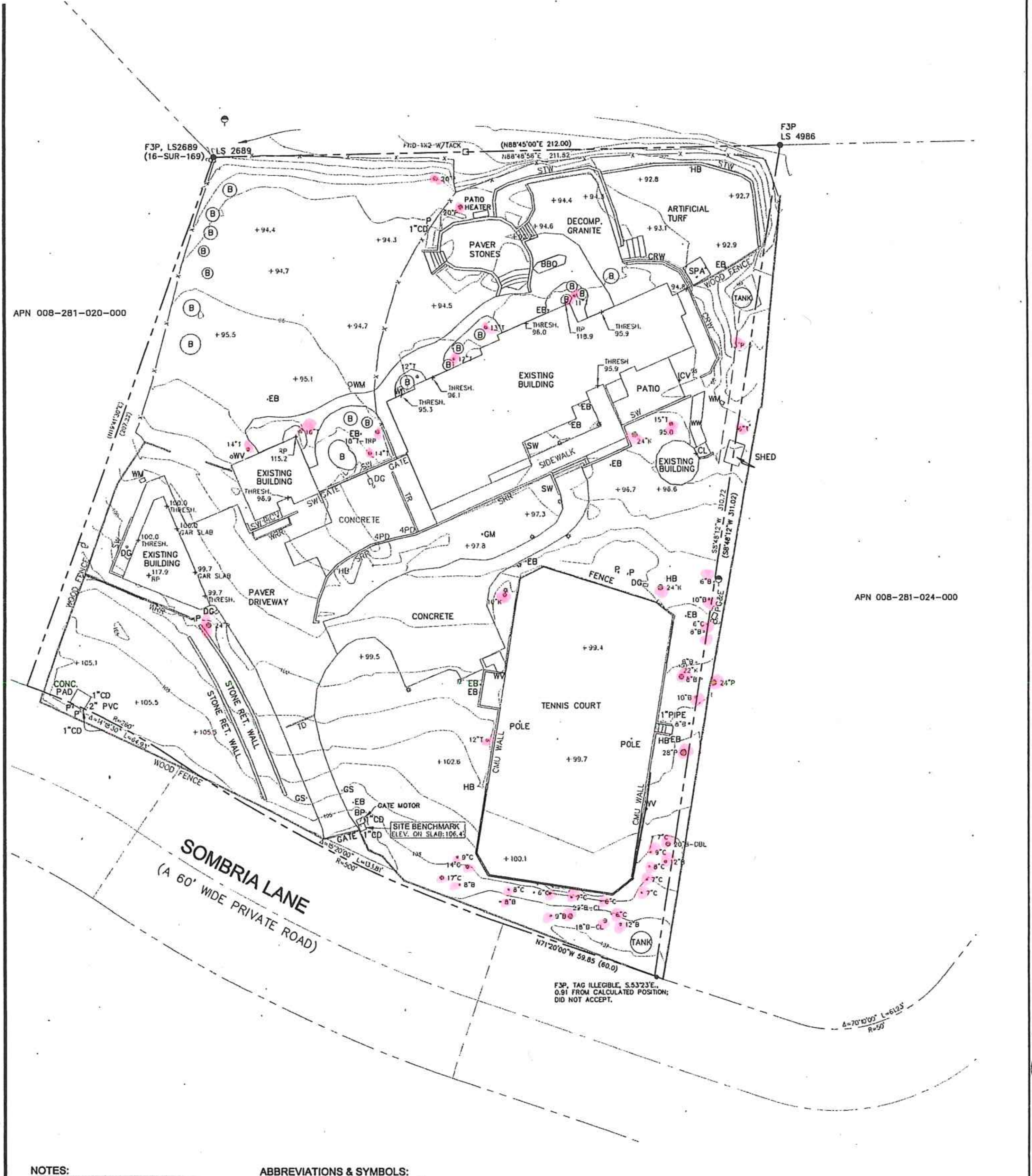
1155 Sombria Lane

eye alt 302 - March 2016

Approximate canopy lost between March 2016 and October 2016

NOTE: This canopy lost during same period but appears to be on Pebble Beach Company property


1155 Sombria Lane
eye alt 302 - October 2016
Legend
Untitled Placemark
Google earth
50 ft
N



NOTES:

THIS MAP PORTRAYS THE SITE AT THE TIME OF THE SURVEY AND DOES NOT SHOW SOILS OR GEOLOGY INFORMATION, UNDERGROUND CONDITIONS, EASEMENTS, ZONING OR REGULATORY INFORMATION OR ANY OTHER ITEMS NOT SPECIFICALLY REQUESTED BY THE PROPERTY OWNER.

THERE MAY BE EASEMENTS OR OTHER RIGHTS, RECORDED OR UNRECORDED, AFFECTING THE SUBJECT PROPERTY WHICH ARE NOT SHOWN HEREON.

UNDERGROUND UTILITIES, IF ANY, WERE NOT LOCATED. INFORMATION REGARDING UNDERGROUND UTILITY LOCATIONS SHOULD BE OBTAINED FROM THE APPROPRIATE UTILITY COMPANIES OR PUBLIC AGENCIES.

ELEVATIONS ARE BASED ON AN ARBITRARILY ASSUMED DATUM AS NOTED.

GROUND MAY BE MORE IRREGULAR THAN CONTOURS INDICATE.

DISTANCES ARE EXPRESSED IN FEET AND DECIMALS THEREOF.

WHERE DATA DIFFERS, PARENTHESES DENOTE RECORD DATA.

THE CROSS SYMBOL (+) MARKS THE HORIZONTAL POSITION OF THE SPOT ELEVATION SHOWN.

TREE SYMBOLS ARE DRAWN TO SCALE ONLY APPROXIMATELY.

SUFFICIENT BOUNDARY TIES WERE MADE TO GRAPHICALLY SHOW EXISTING FEATURES, A COMPLETE BOUNDARY SURVEY WAS NOT DONE AT THIS TIME

TOPO LIMITS WERE CONSTRAINED TO FEATURES WITHIN FENCE LINES FOR LANDSCAPE DESIGN.

ABBREVIATIONS & SYMBOLS:

☼ LIGHT

HOGWIRE FENCE

BOARD FENCE

4" PVC

4PD = 4" PVC DRAIN
B = BOULDER
BP = BREAKER PANEL
CD = CONDUIT
CRW = CONCRETE RETAINING WALL
DG = DRAIN GRATE
EB = ELECTRIC BOX
GS = GATE SWITCH
HB = HOSEBIB
ICV = IRRIGATION CONTROL VALVE
P = POST
RP = ROOF PEAK
SRW = STUCCO RETAINING WALL
STW = STONE WALL
SW = STUCCO WALL
TD = TRENCH DRAIN
WL = WOOD LANDING
WV = WATER VALVE
WRR = WOOD RETAINING WALL
WW = WOOD WALKWAY

TREES:

B = BAY
C = CYPRESS
P = PINE
T = TREE (UNIDENTIFIED)

PROJECT NO.
16033 TOPO

TOPOGRAPHIC SURVEY

THAT CERTAIN REAL PROPERTY DESCRIBED IN DOCUMENT 2013011032, RECORDED 02/21/2013, RECORDS OF MONTEREY COUNTY, CALIFORNIA
APN 008-281-023-000

PREPARED FOR: JOHN ALLEN

RLS

DATE OF SURVEY: 04/29/16
DRAWING SCALE: 1"=20'
DRAWN BY: DG/RP
REVISED:

JMLA
JESSICA

Exhibit B

REPORT
to
MR. JOHN ALLEN
C/O MR. DEREK JOHNSON
CENTRAL COAST ENGINEERS
21 WEST ALISAL STREET, SUITE 119
SALINAS, CALIFORNIA 93901

GEOTECHNICAL REPORT
for the proposed
ADDITIONS & NEW GARAGE
WITH OFFICE
ALLEN RESIDENCE
1155 SOMBRIA LANE
PEBBLE BEACH, CALIFORNIA
A. P. N. 008-281-023-000

by

GRICE ENGINEERING, INC.
561 A BRUNKEN AVENUE
SALINAS, CALIFORNIA
JUNE 2020

GRICE ENGINEERING INC

ENGINEERING GEOTECHNICS SEPTIC HYDROLOGY
FOUNDATIONS SOILS EARTH STRUCTURES

561A Brunken Avenue
Salinas, California 93901
griceengineering@sbcglobal.net

Salinas: (831) 422-9619
Monterey: (831) 375-1198
FAX: (831) 422-1896

File No. 7147-19.11
June 12, 2020

Mr. John Allen
C/o Mr. Derek Johnson
Central Coast Engineers
21 West Alisal Street, Suite 119
Salinas, California 93901

Project: Additions & New Garage with Office
Allen Residence
1155 Sombria Lane
Pebble Beach, California
A. P. N. 008-281-023-000

Subject: Geotechnical Report

Dear Mr. Allen;

Pursuant to your request, we have completed our geotechnical investigation and evaluation of the above named site. It is our opinion that this site is suitable for the proposed development, provided the recommendations made herein are followed.

In general, the near surface soils are loose and will need to be taken into account during design and construction of the additions to the residence and the new garage with the office and basement. Recommendations are given relative to this and other characteristics within the report and especially under Special Recommendations.

The report contained herein is made with our best efforts to evaluate the site, determine the site's geotechnical conditions and provide recommendations for these conditions. We submit this report with the understanding that it is the responsibility of the owner, or his representative, to ensure incorporation of these recommendations into the final plans, and their subsequent implementation in the field.

In addition, we recommend that GRICE ENGINEERING, INC., be retained to review the project plans and provide the construction supervision and testing required to document compliance with these recommendations. Should any site condition not mentioned in this report be observed, this office should be notified so that additional recommendations can be made, if necessary.

This report and the recommendations herein are made expressly for the above referenced project and may not be utilized for any other site without written permission of GRICE ENGINEERING, INC.

Please feel free to call this office should you have any questions regarding this report.

Very truly yours,
GRICE ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
LAWRENCE E.
GRICE
RCE 66857
Exp. 09-30-20
06122020DIGITAL
CIVIL
STATE OF CALIFORNIA

Lawrence E. Grice, P.E.
R.C.E. 66857

NOTICE TO OWNER

Any earthwork and grading performed without direct engineering supervision and materials testing by Grice Engineering Inc., will not be certified as complete and in accordance with the requirements set forth herein.

Foundations placed without observation of bearing conditions will not be certified as being in accordance with the requirements set forth herein.

Inspection of Work

It is recommended that all site work be inspected and tested during performance by this firm to establish compliance with these recommendations.

NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

A minimum of 48 hours (2 working days) notification is required prior to commencement of work so that scheduling for testing and inspections can be made.

Please be advised that costs incurred during inspection and testing of all site work is separate and not considered part of the fees as charged by Grice Engineering, Inc. for the report contained herein.

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GEOTECHNICAL REPORT
for the proposed
ADDITIONS & NEW GARAGE
WITH OFFICE
ALLEN RESIDENCE
1155 SOMBRIA LANE
PEBBLE BEACH, CALIFORNIA
A. P. N. 008-281-023-000

Introduction, Method and Scope of Investigation

The purpose of this report is to evaluate the geotechnical properties of the site relative to the construction of the additions to the residence and a new garage with office and basement adjacent to the residence. From these findings recommendations are given for the design of the development and subsequent construction.

For this purpose, the site was investigated, and prior information concerning construction and subsurface exploration in this area was examined for soils and materials data. The investigation consisted of a detailed site evaluation, which included: a site inspection; a review of literature made available to GRICE ENGINEERING, INC., including Site Plans from Maxey Design Group; geotechnical drilling and soil sampling; materials evaluation; and analysis of the geotechnical properties of the site soils. This report concludes the results of the investigation and provides recommendations based on that work.

The findings and recommendations contained in this report are applicable only to the above named site and its proposed development, and may not be utilized for any other site or purpose without written permission of GRICE ENGINEERING, INC.

Site Description

The project site, 1155 Sombria Lane, Pebble Beach, is located approximately 0.07 miles southeast of the intersection of Porque Lane, Portola Road, and Sombria Lane, in Pebble Beach, an un-incorporated area of westernmost Monterey County, California. Please refer to the Vicinity and Location Maps and the Site Map in Appendix A for details.

The 1.497 acre site is located on an elevated marine terrace at elevations of approximately 84 to 105 feet above mean sea level (msl). Topographically the grade descends moderately to the north from Sombria Lane becoming gently sloped after 50 feet. The majority of the site is covered with grass, landscaping, hardscaping and a variety of trees.

Currently a single family residence is located somewhat centrally in the northern portion of the parcel and is aligned northeast to southwest. An attached garage is located on the residence's southwestern end and is accessed by of a driveway from the southwestern property line. A guesthouse is located off the western corner of the garage, and a gym is located in the site's western corner, while a tennis court is located in the southeastern corner.

As proposed, a new bedroom wing is to replace the attached garage and the master bedroom will be remodeled and expanded to the west. Additionally, a new garage with office and basement storage is to be where the existing tennis court is located.

Due to previous site grading, construction and demolition of various site structures, loose and disturbed and soils will be encountered, along with disturbances from prior activity.

The above grade additions and new construction are to be of conventional wood construction with subsurface portions constructed of cast in place concrete or masonry. Support is to be provided by isolated and/or continuous spread footings. The residential additions to the existing residence are to have concrete slab-on-grade floors. The floor of the garage will be suspended concrete with the lower basement floor being concrete slab on grade.

Field Investigation

Our field investigation consisted of a site inspection, along with drilling and sampling 4 exploratory bores to establish the subsurface soil profile, and obtain sufficient soil specimens to determine the soil characteristics. Drilling was accomplished by continuous flight auger, with the spoil constantly examined, classified, and logged by field method in accordance with the Unified Soil Classification Chart[1] which is the basis of ASTM D2487-10.

Relatively undisturbed soil samples were obtained by the penetration resistance method, (ASTM Method D1586-08), by which a split barrel sampler (ASTM D-3550-01) was driven a minimum of 18 inches into the sampled materials by free dropping a 140 pound weight 30 inches. The number of blows required to drive the sampler were recorded in 6 inch increments after conversion to Standard Penetration Resistance values utilizing the Burmister Formula. The number of

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[1] Adopted 1952 by Corps of Engineers and Bureau of Reclamation. ASTM D2487 was developed as based on the Uniform Soils Classification Chart and System. The methods are equivalent.

blows required to drive the sampler the last two increments taken as the Standard Penetration Resistance. The split barrel sampler (ASTM D-3550-01), with dimensions of 2.4" I.D. x 3.0" O.D., is provided with 1 inch tall brass ring liners for the purpose of returning the samples to the laboratory in as near *in-situ** condition as possible.

* *In-situ* refers to the in place state of soil. *In-situ* native soils are those which are in-place as deposited by nature and have not been disturbed by man's actions in the historic past.

Site Soil Profile

As found in the exploratory drilling, the site soils are generally consistent between each of the bores.

The shallowest soil horizon were observed to be a fine sand containing trace to few amounts of silts. These soils are generally considered dune deposited materials with some reworking by alluvial activities. These materials are generally loose to several feet as developed topsoil however they typically become dense below approximately 3 feet.

An older terrace deposit is located adjacent and underlays portions of topsoil. This material is comprised of a blend of silts, clays and sands, generally of fine gradation. These materials were observed medium dense to dense. These materials were observed to be moist nearest grade and which increases to wet at contact with the underlaying granite.

Granite bedrock is located at approximately 10 to 15 feet below grade. The bedrock is moderately weathered at contact which decreases after several feet.

Complete soil characteristics and comments are reported on the boring logs at the depths observed. The logs are located in Appendix B.

Groundwater

Free groundwater was encountered at this site. The depth to free water varies depending on location and lithology with some free water migrating across grade during and after inclement weather.

Laboratory Testing

Laboratory testing consisted of establishing the *in-situ* ** moisture content and dry density (ASTM D 2487-10), unconfined penetration, and direct shear testing (ASTM D 3080-04). Standard Penetration Resistance values gained during the exploratory drilling are also included.

The following is a tabulation of the field and laboratory test result extremes:

TABLE 1

SUMMARY OF SOIL PROPERTIES

TEST	MAXIMUM	MINIMUM
Standard Penetration Resistance	187 blows/foot	23 blows/foot
Unconfined Compression*	9 kips/ft^2	4 kips/ft^2
In-Situ Density	120.0 lbs/ft^3	105.2 lbs/ft^3
In-Situ Moisture	19.4 %	7.8 %
Angle of Internal Friction	45 degrees	22 degrees
Cohesion	946 lbs/ft^2	274 lbs/ft^2

All data obtained is reported in Appendix B including the boring logs, with soil classified described at depth observed.

* Pocket Penetrometer

** *In-situ* refers to the in-place state.

Seismic History

Although no fault traces are thought to directly cross the building site, Monterey County is traversed by a number of faults most of which are relatively minor hazards for the purposes of the site development. As such, this site will experience seismic activity of various magnitudes emanating from one or more of the numerous faults in the region.

Various maps presently exist, allowing observation on the site of distinctive geologic features. Some maps, such as that by Burkland and Associates (Reference No. 10) developed for Monterey County, are compilations from various sources detailing the locations of studied faults. Faults have inherit variances within their zones, and discoveries of new fault segments or entire faults is ongoing. There is also some difference in exact fault line location from source map to map, making precise location of said faults difficult. Therefore, relative to the information contained within this report, the following is considered to be as accurate as is currently possible from information made available to Grice Engineering Inc..

Regional Faults

Of most concern are active faults which have tectonic movement in the last 11,000 years and as such are called Holocene Faults and potentially active faults. The following are those nearest listed (Reference No. 12).

The most active is the San Andreas Rift System (Pajaro), located approximately 28.2 miles to the northeast. It has the greatest potential for seismic activity with estimated intensities of VI-VII Mercalli in this location.

Other fault zones are the Monterey Bay-Tularcitos Fault Zone, the center of which is located approximately 4.0 miles to the northeast, the Rinconada Fault Zone, approximately 12.2 miles to the northeast, the San Gregorio-Palo Colorado (Sur) Fault Zone, approximately 3.0 miles to the southwest, and the Zayante-Vergeles Fault Zone, approximately 24.1 miles to the northeast. These zones are not as liable to rupture as the San Andreas and a seismic event at any of the above fault zones would likely produce earth movements of a lesser intensity at the site.

Local Faults

In addition to the fault zones as discussed above, the local faults are listed below as shown on the following maps, "Preliminary geologic map of the Monterey and Seaside 7.5 minute quadrangles, Monterey County, California, with emphasis on active faults" (Reference No. 15), "Geological Map of the Monterey and Seaside 7.5 minute Quadrangles, Monterey County, California: A Digital Database" (Reference No. 16) "Geologic Map of the Monterey Peninsula and Vicinity, Monterey, Salinas, Point Sur, and Jamesburg 15-Minute Quadrangles, Monterey County" (Reference No. 22), "Fault Activity Map of California: California Geological Survey Geologic Data Map" (Reference No. 32) and "Quaternary Fault and Fold Database for the United States" (Reference No. 46) including the USGS overlay on Google Earth.

TABLE OF LOCAL FAULTS

FAULT, PERPENDICULAR TO SITE	APPROXIMATE DISTANCE FROM SITE	DIRECTION	TIME OF LAST DISPLACEMENT ON FAULT (Ref. 32)
Cypress Point Fault, inferred	0.02 mile See note 1	northeast	Quaternary
Cypress Point Fault, splay, concealed, queried	0.45 miles	northeast	Quaternary
Hatton Canyon Fault, concealed, queried	1.99 miles	northeast	Quaternary

Notes: 1. The exploratory drilling confirms that the Cypress Point Fault is located to the northeast of the building area and most likely to the northeast of the property boundary as granite bedrock was encountered throughout the bores on this site and adjacent parcels.

Liquefaction

The site soils are considered not susceptible to liquefaction as they are either unsaturated or suitably dense sands often containing a significant proportion of silts and clays. Historic records of liquefaction indicates the are of the Monterey Peninsula have not exhibited liquefaction or sand boils, an indication of partial liquefaction.

Differential-Total Settlement - Static and Dynamic

The recommendations given in the Geotechnical Report are such that concerns of settlement are negligible. The total settlement is expected to be less than1/4 inch and the expected differential settlement less than one half that.

Hydro-Collapse and Subsidence

As observed the near surface soils to an approximate depth of two feet are loose. These soils possess some capacity to settle under hydraulic loading. However this effect is not common in the area. The recommendations given in this report were established to reduce the potential of this occurring.

The area is not within a known Subsidence Zone.

Slope Stability

Inspection of the site indicates that no landslides are located above or below the building area and the area is generally not susceptible to slope failure due to the shallow grade.

Seismic Strength Loss

The site soils are considered resistant to seismic strength loss and the resulting momentary liquefaction. The relatively short duration of earthquake loading will not provide a significant number of high amplitude stress cycles to alter the strain characteristics. Additionally the clay-silt fraction is not considered quick nor sensitive, as such it will not have the associated loss of strength.

Chemical Reactivity

The area is well developed with structures, generally found on Portland Cement products. Additionally these structures date back to the 1940's or earlier. Much of the concrete used in these structures has remained as cast. The area soils are not known for sulfate reaction with Portland cement products and as such chemical reactivity is not considered a problem in this area.

Expansive Soils

In general the site soils are generally non expansive as they are fine sands with few to little amounts of silts and clays. These soils are typical to the area. Expansivity has not been influential to the existing structure as no deformations attributable to expansive soils were observed. Additionally there are no known problems with expansive soils in the area.

Surface Rupture and Lateral Spreading

The project site is located 0.02 miles to the southwest of the Cypress Point Fault. The site inspection did not reveal any surface features indicating a fault rupture has occurred at the site. The existing structure, driveways and roads do not reveal any strains which would be attributable to subsurface lateral or vertical displacements resulting from fault slip. Therefore surface rupture from fault activity across the site is considered improbable.

The project site is underlain by relatively strong soils and bedrock at a shallow. These materials are considered resistant to lateral spreading. As such surface rupture from lateral spreading is considered improbable.

Seismicity

It is recommended that all structures be designed and built in accordance with the requirements of the California Building Code's current edition. All buildings should be founded on undisturbed native soils and/or tested and accepted engineering fill to prevent resonance amplification between soils and the structure.

2019 California Building Code Geoseismic Classifications

The California Building Code, 2019 edition (Reference No. 13), provides for seismic design values. These values are to be utilized when evaluating structural elements. The soils profile determination is based on the penetration resistance data developed from advancement of exploratory bores. Using averaged penetration values per depth of soils type gives an overall site value of 55 blows/foot penetration resistance as per Equation 20.4-3, ASCE 7-16 and Supplement 1 (02/01/19). The geoseismic character is as listed in the following table.

2018 I.B.C. - 2019 C.B.C. EARTHQUAKE LOADS: SECTION 1613				
LATITUDE	36.576593	SOIL PROFILE:	Stiff Soils	
LONGITUDE	-121.965845	SITE CLASS	D	
PERIOD	S	F	Sm	Sd
0.2 sec	Ss = 1.288	Fa = 1.2	Sms = 1.546	Sds = 1.031
1.0 sec NOTE 1	S1 = 0.489	Fv = 1.5	Sm1 = 0.733	Sd1 = 0.489
Seismic Design Category to be assigned by structural engineer or designer				

Note 1: Refer to Section 11.4.8 ASCE 7-16 for other requirements.

CONCLUSIONS OF INVESTIGATION

In general, the suitable, *in-situ**, native soils and certified engineered fill are acceptable for foundation purposes and display engineering properties adequate for the anticipated soil pressures, providing the recommendations in this report are followed.

Special Recommendations

It is recommended that all loose and disturbed soils be processed as engineered fill within the building envelope and for any portion of development to receive on-grade engineered structures, eg. interior floor slabs, pavement, etc.. The minimum depth of processing is to include the upper 2 feet of *in-situ** soils. The depth is to be increased, as necessary, to provide a minimum of one foot of engineered fill below all foundations and process all required soils.

Design and construction of the proposed garage basement or other subsurface structures will need to consider the free groundwater. Further recommendations for design and construction methods can be issued as the design proceeds.

The area has been developed and as such underground utilities may be located within the area of proposed construction. In addition, buried objects or deeply disturbed soils may also be encountered. As such all care and practice is to be exercised to observe for and locate any such objects. Where these objects are to be removed or use discontinued, they are to be removed in their entirety and all disturbed soils are to be processed as engineered fill.

The base of all excavations and over-excavations are to be inspected by the Soils Engineer prior to further processing, steel or form placement.

Any further site activity, especially grading and foundation excavations, should be under the direction of a qualified Soils Engineer or their Representative. Should the spectrum of development change, this office should be notified so that additional recommendations can be made, if necessary.

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* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Foundations and Footings

Geotechnical evaluation indicates that square, round, and continuous spread footings are satisfactory types of support. The minimum embedment for shallow, spread foundations is 12 inches for single stories and 18 inches for two stories into suitable, *in-situ**, native soils or certified engineered fill. The proposed basement below the garage will most likely be bearing on granite, as such no specific embedment is required. Embedment depths do not take into account the loose upper top soils, disturbed soils or any other unacceptable soils which exist at the site, e.g., any un-engineered fill, landscaping soils, etc.

<table>
<tr><th colspan="2">VERTICAL SOIL PRESSURES[1]</th></tr>
<tr><td>FOOTING TYPE</td><td>DEAD + LL, kips/ft^2</td></tr>
<tr><td>Spread & Isolated, Soil</td><td>2.7</td></tr>
<tr><td>Granite Bedrock</td><td>6.0</td></tr>
<tr><th colspan="2">LATERAL SOIL PRESSURES[1]</th></tr>
<tr><td>TYPE</td><td>VALUE, lbs/ft^2</td></tr>
<tr><td>Active Earth Pressure</td><td>32 lbs/ft^3 (Equivalent Fluid Pressure)</td></tr>
<tr><td>Restrained Earth Pressure</td><td>54 lbs/ft^3 (Equivalent Fluid Pressure)</td></tr>
<tr><td>Seismic</td><td>2 lbs/ft^{3}xH^2 applied at 0.6H</td></tr>
<tr><td>Friction at Base</td><td>0.35 × Dead Load</td></tr>
<tr><td>Passive Earth Pressure</td><td>305 lbs/ft^3 × $H^{2\ \text{NOTE2}}$</td></tr>
<tr><td>Uplift Friction</td><td>165 lbs/ft^2 × H</td></tr>
</table>

Notes: LL = Live Load; DL = Dead Load; H = Vertical height of material retained.
One-third increase to be allowed for wind and seismic forces.
[1] For depths into acceptable native materials or engineered fill.
[2] Excludes near surface 0.5 feet of *in-situ* soils.

Pile and Pier foundation information is not provided as none are required or proposed. All foundation excavations are to be cleaned of debris and loose or otherwise unsuitable soils prior to placement of concrete.

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* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Slabs-on-Grade

All slabs should be constructed over a prepared sub-grade placed on suitable *in-situ** native material or certified engineered fill. The site exploration observed that the existing surficial soils are loose to depths of approximately 2 to 3 feet. These soils should not be relied upon for support of slabs on grade or other surficial structures.

As such where any unsuitable soils remain after excavation to subgrade they are to be processed as engineered fill prior to further fill placement or construction of the on grade structure. At a minimum the upper 6 inches of subgrade below all surficial structures should be processed as engineered fill in areas of on grade structures.

The sub-grade materials should be observed and accepted by a qualified Soils Engineer or their representative prior to placement of forms, reinforcing or concrete.

On-grade slabs should be placed over a moisture vapor barrier consisting of a waterproof membrane (Moist Stop, 10 mil Visqueen, or equal) with a 2 inch protective sand cover. The waterproof membrane should be placed over a capillarity break consisting of 4 inches of open graded rock; round and sub-round rock is recommended to prevent puncture of the membrane. Open graded crushed aggregate may be utilized, provided the vapor barrier is protected from puncture by a cushion of filter fabric (Mirafi 140N or equal) laid over the aggregate prior to placement of the membrane. Where such concerns are not warranted, alternative underlayment may be utilized at the owners discretion.

All care and practice required to prevent puncture of the membrane during placement and pouring of covering slabs should be utilized during construction. Unless otherwise required for structural purposes, all slabs should be reinforced with a minimum of No.4, Grade 40, deformed steel reinforcing bar, 24 inches o.c., each way, to prevent separation and displacement in cases of cracking.

* Suitable, *in-situ,* native soils are those soils which are in-place as deposited by nature and have characteristics acceptable for support of the intended load or application.

Specifications for Rock Under Floor Slabs

Definition: Graded gravel of crushed rock for use under floor slabs shall consist of a minimum thickness of mineral aggregate placed in accordance with these specifications and in conformance with the dimensions shown on the project plans. The minimum thickness is specified under the section Slabs-on-Grade above.

Material: The mineral aggregate for use under floor slabs shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination thereof. The aggregate shall be free from adobe, vegetable matter, loam, volcanic tuff, and other deleterious substances. It shall be of such quality that the absorption of water in a saturated dry condition does not exceed 3 percent of the oven dry weight of the sample.

Grading: The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by the use of laboratory sieves, U.S. Standard, in compliance with ASTM C 136-06, Standard Method for Sieve Analysis of Fine and Coarse Aggregates, will conform to the following grading specification:

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/4 inch	100 %
No. 4	0 - 10 %
No. 200	0 - 2 %

Placing: Sub-grade upon which gravel or crushed rock is to be placed shall be prepared as outlined in the Recommended Grading Specifications. In addition, the Sub-grade shall be kept moist so that no drying cracks appear prior to pouring slabs. If cracks appear, Sub-grade shall be moistened until cracks close.

Slope Ratio and Drainage

Analysis of site soils indicate that cut and fill slope ratios of 2 horizontal to 1 vertical will be satisfactory provided they are landscaped with soil retaining ground covers and are protected against concentrated over slope drainage.

Surface Drainage and Erosion Control

Design and construction of the project should fit the topographic and hydrologic features of the site. It is important to minimize unnecessary grading of or near steep slopes. Disturbing native vegetation and natural soil structure allows runoff velocity and transport of sediments to increase.

General surface drainage should be retained at low velocity by slope, sod or other energy reducing features sufficient to prevent erosion, with concentrated over-slope drainage carried in lined channels, flumes, pipe or other erosion-preventing installations.

Runoff flows should be directed into pipes or lined ditches and then onto an energy dissipater before discharging into streams or drainage ways. De-silting should be provided as necessary and may take form of stilling basins, gravel berms, forested/vegetated screens, etc.

It is recommended that concentrated roof and area drainage be conveyed and released as separately and divided as possible to the lower portion of the parcel below and away from all structures. The release of drainage should consider adjacent parcels and structures. A sub-surface dispersal system could be used but may not work well.

Recent changes to the drainage requirements has the potential to alter drainage patterns. This has been observed to effect structures which have otherwise not been affected or to alter the way they are affected. As such new drainage modifications on this and adjacent parcels may negatively affect drainage patterns.

During construction, never store cut and fill material where it may wash into streams or drainage ways. Keep all culverts and drainage facilities free of silt and debris. Keep emergency erosion control materials such as straw mulch, plastic sheeting, and sandbags on-site and install these at the end of each day as necessary.

Re-vegetate and protect exposed soils by October 15. Use appropriate grass/legume seed mixes and/or straw mulch for temporary cover. Plan permanent vegetation to include native and drought tolerant plants. Seeding and re-vegetation may require special soil preparation, fertilizing, irrigation, and mulching.

Subsurface Drains

Use of spun filter fabric is not recommended for use in construction subsurface drains as this type of fabric typically becomes clogged. Should filter fabric be necessary it is recommended that a woven fabric be used such as Mirafi Filterweave 300. Otherwise we would recommend omission of the fabric and placement of Caltrans Class 1, Type 'A" or "B" drain rock, and that any fabric only be placed near the top of the trench between the gravel and earth backfill or where the gravel extends to grade, 1 foot below finish grade.

CLASS 1		
SIEVE SIZES	**PERCENTAGE PASSING**	
	TYPE A	TYPE B
50.0-mm/2 inches	----	100
37.5-mm/1.5 inches	----	95-100
19.0-mm/0.75 inches	100	50-100
12.5-mm/0.5 inches	95-100	-----
9.5-mm/0.415 inches	70-100	15-55
4.75-mm/No. 4	0-55	0-25
2.36-mm/No. 8	0-10	0-5
75.0-µm/No.200	0-3	0-3

General Grading Recommendations

For those items not directly addressed, it is recommended that all earthwork be performed in accordance with the following.

General: This item shall consist of all clearing and grubbing; preparation of land to be filled; excavation and fill of the land; spreading, compaction and control of the fill; and all subsidiary work necessary to complete the graded area to conform with the lines, grades and slopes as shown on the approved plans.

The Contractor shall provide all equipment and labor necessary to complete the work as specified herein, as shown on the approved plans as stated in the project specifications.

Preparation: Site preparation will consist of clearing and grubbing any existing structures and deleterious materials from the site, and the earthwork required to shape the site to receive the intended improvements, in accordance with the recommended grading specifications and the recommendations as provided above.

All vegetable matter, irreducible material greater than 4 inches and other deleterious materials shall be removed from the areas in which grading is to be done. Such materials not suitable for reuse shall be disposed of as directed.

After the foundation for fill has been cleared, it shall be brought to the proper moisture content by adding water or aerating and compacting to a Relative Compaction of not less than 90% or as specified. The soils shall be tested to a depth sufficient to determine quality and shall be approved by the Soils Engineer for foundation purposes prior to placing engineered fill.

General Fill: General fill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 90% Relative Compaction. Native soils accepted for fill or existing aggregate fill may be used for fill purposes provided all aggregate larger than 6 inches are removed. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Each layer shall be compacted to a Relative Compaction of not less than 90% or as specified in the soils report and on the accepted plans. Compaction shall be continuous over the entire area of each layer.

The selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in thickness. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to ensure uniformity of material in each layer. Fill shall be placed such that cross fall does not exceed 1 foot in 20 unless otherwise directed.

When fill material includes rock or concrete rubble, no irreducible material larger than 4 inches in greatest dimension will be allowed except under the direction of the Soils Engineer.

Imported Materials: Materials imported for fill purposes shall be classified as: SAND, group symbol SW, SP, SC or SM, as given in ASTM 2487-10, "The Classification of Soils For Engineering Purposes." In all cases the portion finer than the No. 200 sieve shall not contain any greatly expansive clays and shall be free from vegetable matter and other deleterious materials. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Structural Backfill: Trench, wall and structural backfill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 95% Relative Compaction. Materials imported for backfill purposes shall have a Sand Equivalent of no less than 30 and shall be classified as Clean Sands as designated in "The Classification of Soils For Engineering Purposes" (ASTM 2487-10).

Pavement Grades: All pavement grades shall be of uniform thickness, density and moisture prior to placement of the next grade. Flexure of each or all grades shall not exceed 0.25 inches in 5 feet under an axial load of 18.5 kip.

Aggregate Base Course: All aggregates used for specified base courses, shall be handled in a manner which prevents segregation and non-uniformity of gradation.

Compaction: All re-compacted soils and/or engineered fill should be placed at a minimum 90% Relative Compaction or at the value required for that portion of the work. All pavement sections should be compacted to a minimum of 95% Relative Compaction.

Field density testing shall be completed by the Soils Engineer on each compacted layer or as determined by the Soils Engineer. At least one test shall be made for each 500 cubic yards or fraction thereof, placed with a minimum of two tests per layer in isolated areas. Where a sheeps'-foot roller is used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted materials below the disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof, is below the required density, that particular layer or portion shall be reworked until the required density has been obtained.

Moisture: During compaction moisture content of native soils should be that consistent with the moisture relative to 95% Relative Compaction and in no case should these materials be placed at less than 3 percent above the specific optimum moisture content for the soil in question. The engineer may elect to accept high moisture compacted soils provided the materials are at 95% Relative Wet Density at that moisture content.

The moisture content of the fill material shall be maintained in a suitable range to permit efficient compaction. The Soils Engineer may require adding moisture, aerating, or blending of wet and dry soils.

All earth moving and work operations shall be controlled to prevent water from running into and pooling in excavated areas. All such water shall be promptly removed and the site kept drained.

Tests: All materials placed should be tested in accordance with the Compaction Control Tests: "Density of Soil In-Place by Sand Cone Method" (ASTM D-1556-07), "Moisture-Density Relationship of Soils" (ASTM D-1557-09), and "Density of Soils In-Place by Nuclear Method" (ASTM D-6938-10).

The standard test used to define maximum densities of all compaction work shall be the A.S.T.M. D-1557-09, Moisture Density of Soils, using a 10-pound ram and 18-inch drop. All densities shall be expressed as a relative density in terms of the maximum density obtained in the laboratory by the foregoing standard procedure.

Deleterious Materials: Materials containing an excess of 5% (by weight) of vegetative or other deleterious matter may be utilized in areas of landscaping or other non-structural fills. Deleterious material includes all vegetative and non-mineral material, and all non-reducible stone, rubble and/or mineral matter of greater than 6 inches.

Over-Excavations: Over-excavations, when required, should include the foundation and pavement envelopes. Such excavations should extend beyond edge of development a minimum of 5 feet and to an imaginary line extending away and downward at a slope of 45 degrees from the edge of development. The process shall include the complete removal of the required soils and subsequent placement of engineered fill. After removal of the soils to the required depth, the base of the excavation shall be inspected and approved by the Soils Engineer or his representative prior to further soils processing or placement. Based on this inspection other recommendations may be made.

Existing Conditions: In developed areas underground utilities may be located within the area of proposed construction. In addition, buried objects or deeply disturbed soils may also be encountered. As such all care and practice is to be exercised to observe for and locate any such objects. Where these objects are to be removed or use discontinued, they are to be removed in their entirety and all disturbed soils are to be processed as engineered fill.

Key: All fills on slopes greater than 1 vertical to 6 horizontal shall be keyed into the adjacent soil. The toe of all slopes should be supported by a key cut a minimum of 3 feet into undisturbed soils to the inside of the fills toe. This key should be a minimum of 6 feet in width and slope at no less than 10% into the slope. In addition, as the fill advances up slope benches, 3 feet across, should be scarified into the fill/undisturbed soil interface.

Seasonal Limits: When the work is interrupted by rain, fill operations shall not be resumed until field tests by the Soils Engineer indicate that the moisture content and density of the fill is as previously specified and soils to be placed are in suitable condition

Unusual Conditions: In the event that any unusual conditions are encountered during grading operations which are not covered by the soil investigation or the specifications, the Soils Engineer shall be immediately notified such that additional recommendations may be made.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report are based on our understanding of the project as represented by the plans, and the assumption that the soil conditions do not deviate from those represented in this site soils investigation. Therefore, should any variations or undesirable conditions be encountered during construction, or if the actual project will differ from that planned at this time, GRICE ENGINEERING INC. should be notified and provided the opportunity to make addendum recommendations if required.

NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

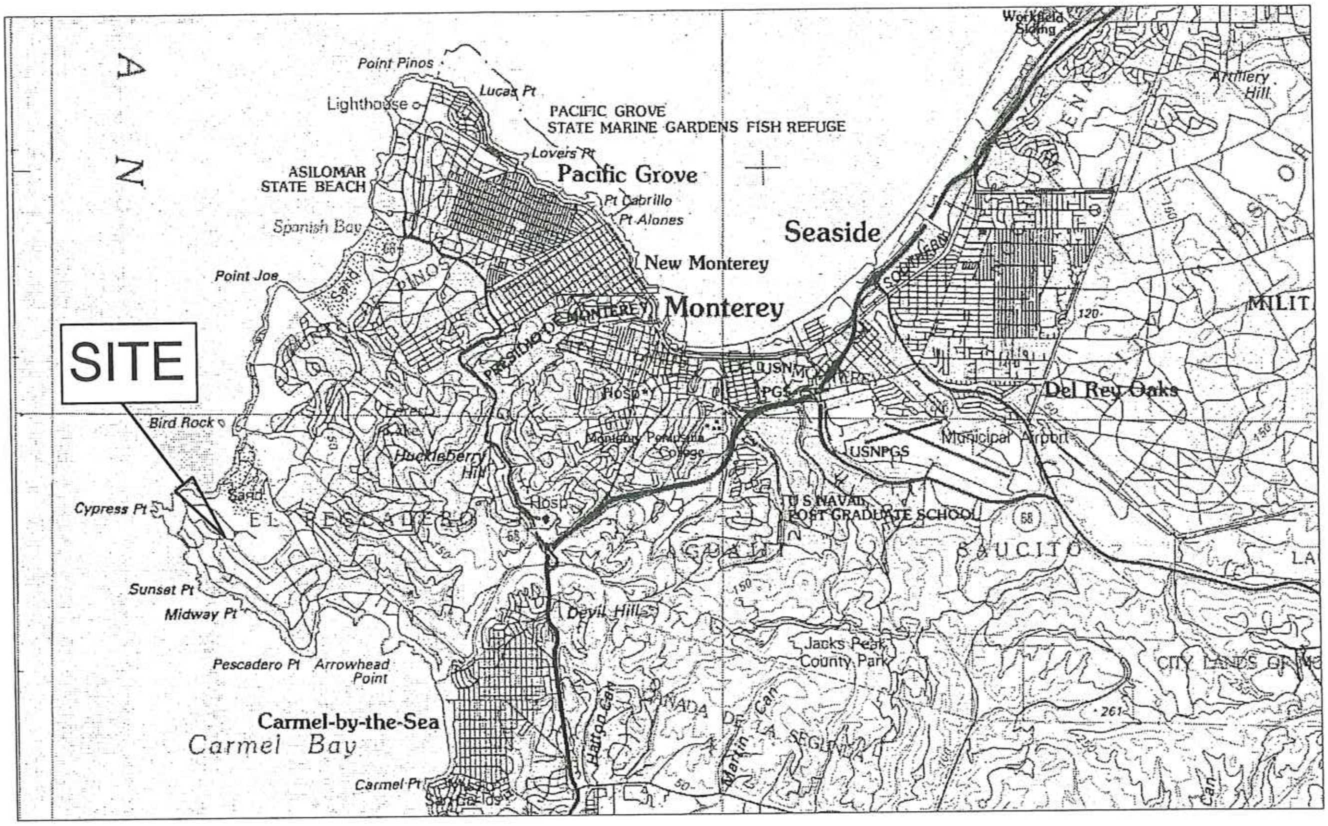
This report is issued with admonishment to the Owner and to his representative(s), that the information contained herein should be made available to the responsible project personnel including the architects, engineers, and contractors for the project. The recommendations contained herein should be incorporated into the plans, the specifications, and the final work.

It is requested that GRICE ENGINEERING INC. be retained to review the project grading and foundation plans to ensure compliance with these recommendations. Further, it is the position of GRICE ENGINEERING INC. that work performed without our knowledge and supervision, or the direction and supervision of a project responsible professional soils engineer renders this report invalid.

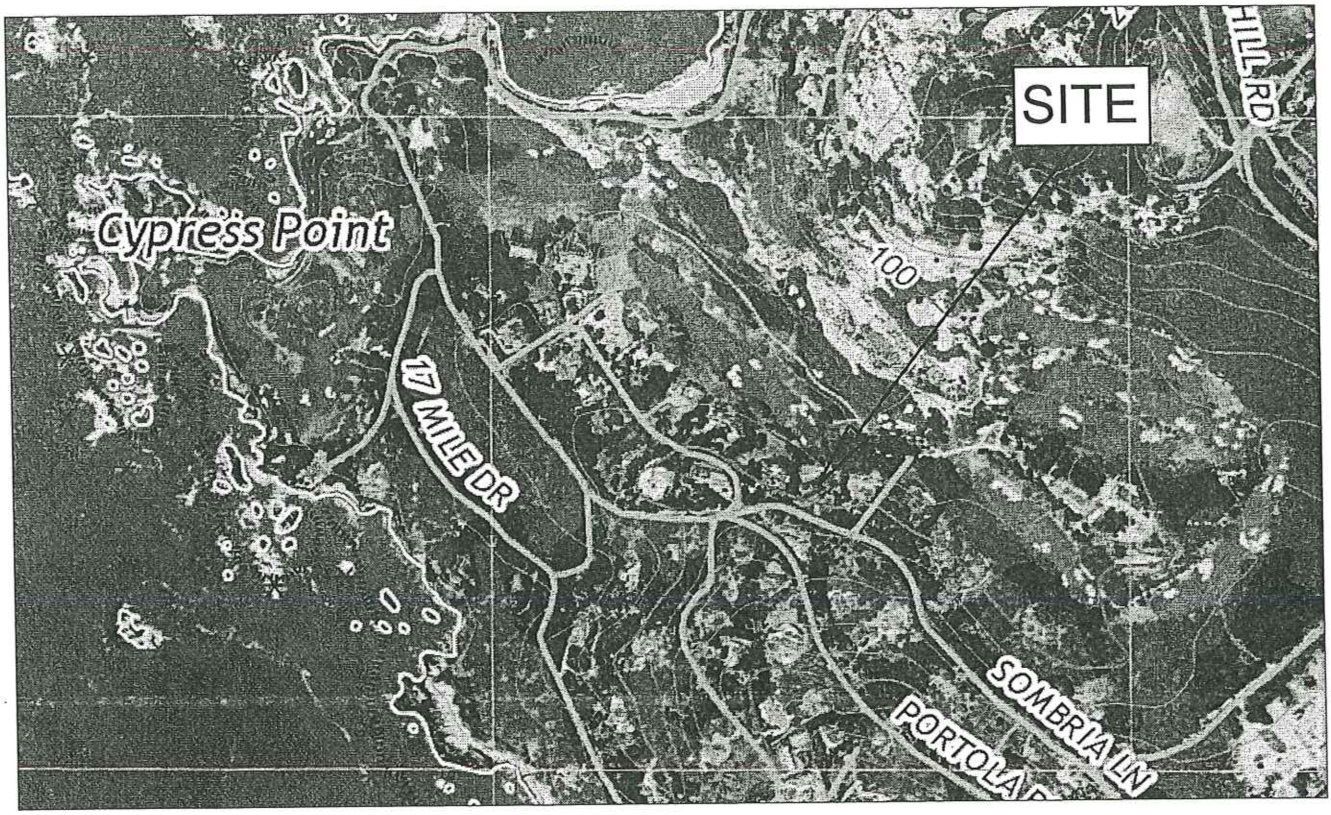
It is our opinion the findings of this report are **valid** as of the **present date**, **however**, changes in the **Codes and Requirements** can occur and change the recommendations given within this report concerning the property. In addition changes in the conditions of a property can occur with the passage of time, due either to natural processes or to the works of man and may affect this property. In addition, changes in **standards** may occur as a result of legislation, or the broadening of knowledge, and these changes may require re-evaluation of the conditions stated herein. Accordingly, the findings of this report may be invalidated wholly, or partially, by changes beyond our control. Therefore, this report is subject to review and should not be relied upon after a period of **three years**.

REVISED 01-07-2011

APPENDIX A



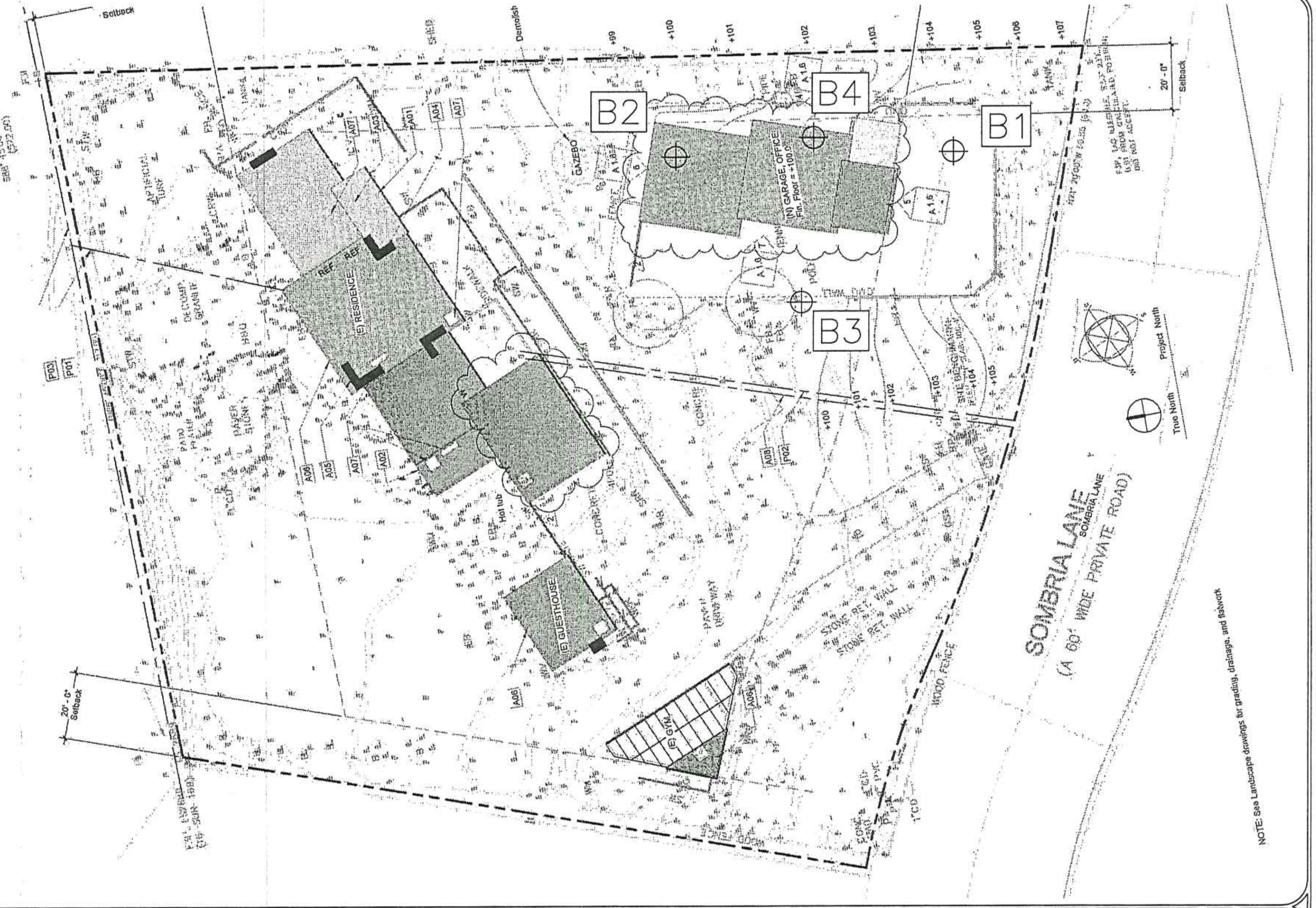
Vicinity Map



Location Map

GRICE ENGINEERING INC
561A Brunken Avenue
Salinas, California 93901
Salinas: (831) 422-9619
Monterey: (831) 375-1198 FAX: (831) 422-1896

Vicinity and Location Map
Allen Residence, Additions and Detached Garage
155 Sombria Lane, Pebble Beach, California



NOTE: See Landscape drawings for grading, drainage, and flatwork.

GRICE ENGINEERING INC

ENGINEERING • GEOTECHNICS • HYDROLOGY • SOILS • FOUNDATIONS • EARTH STRUCTURES

561A Brunken Avenue Salinas, California Salinas: (831) 422-9619 Monterey: (831) 375-1198 FAX: (831) 422-1896

SITE PLAN

Residential Additions, Detached Garage; Allen Residence; 155 Sombria Lane, Pebble Beach, California

APPENDIX B

Garage; Allen Residence; 1155 Sombria Lane, Pebble Beach

Boring No. 1

June 09, 2020

Depth	Symbol	Sample	Field BlowCount per 6 inch	Standard Pen. Burmister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00					Gravel Surface						
1.00					(CUTTINGS - SAMPLE @ 2FT) Mottled; Strong brown to blebs of grayish brown | CLAY; medium plasticity; mod-slightly pliable | little to SOME (varies); sand; gradation wanders from fine to fine to coarse; granite base; subangular to subround | very damp; stiff-very stiff.						
2.00											
	2 hr	2.00	9.00	7							
	GW										
	2.6		16.00	12							
3.00											
			18.00	14			107.8	18.3	8.00		
				26							
4.00											
5.00											
6.00											
	10 min										
	6.5				Strong brown fades to a dark yellowish brown, gray stays and gets a bit more prominent						
	GW				Moisture content rising						
7.00											
					Bit has free water						
		7.50	15.00	11							
8.00											
			36.00	27							
	GW or ROCK		70.00 2.00	160 187	(SHOE OF SAMPLE @ 7.5FT) Speckled; Pale yellow; gray; black | (WEATHERED GRANITE, CLAST OR IN PLACE) | CUTTINGS; SAND; fine to medium; granite base; angular to subangular | very damp (free water on top of); hard.		111.4	19.4	8.50		
9.00											
10.00											
	ROCK				Switch to rock bit						
11.00					Material above is either jointed or compact clasts						
					Cuttings now as an in place rock						
					1134						
12.00					1144						
					Go about 2 inches in 10 minutes						
					End of bore at 12 feet. Free water between 2.5 and 9 feet.						
					Bore left open to measure static water level.						
13.00					Bore left open to monitor water level.						
14.00											
15.00											
16.00											
17.00											
18.00											
19.00											
20.00											

Garage; Allen Residence; 1155 Sombria Lane, Pebble Beach

Boring No. 2

June 09, 2020

Depth	Symbol	Sample	Field BlowCount per 6 Inch	Standard Pen. Burmister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00					Gravel Surface						
	SM				(CUTTINGS) Dark grayish brown | SAND; fine; granite base; subround to round | few to clots of some: silt and silty clay | moist; loose to medium dense at 1.5 feet.						
1.00											
2.00											
					Some cementation						
		2.50	19.00	14							
3.00											
	SP		15.00	11	(SHOE - SAMPLE @ 2.5FT) Pale brown | SAND; fine; granite base; subround to round | trace: silt | moist; medium dense.						
			15.00	11			105.2	7.8	9.00	274	45
4.00											
				23							
5.00											
	SP				(CUTTINGS) Pale grayish brown | SAND; fine; granite base; subround to round | trace-few: silt/clay; occ. clots with few | damp (increasing); medium dense.						
6.00	1 hr										
	GW										
	6.3										
7.00											
	10 min										
	GW										
	7.5	7.50	16.00	12							
8.00											
			15.00	11	About the same, some light corrosion staining, slight free water on barrel No free water seeping in yet						
			15.00	11			107.9	18.3	4.00	410	33
9.00											
				23							
					Same materials, medium grayish brown color coming in, moisture content rising						
10.00											
11.00											
12.00											
		12.50	14.00	11							
13.00											
			11.00	8							
			26.00	20	TIGHTENS last 3 inches		120.0	12.8	7.00	946	22
14.00					Shoe shows Gray weathered Granite						
				28							
	ROCK				(SHOE OF SAMPLE @ 13FT) Speckled; Pale yellow; gray; black | WEATHERED GRANITE | CUTTINGS; SAND; fine to medium; granite base; angular to subangular | very damp (free water on top of); hard.						
15.00											
16.00											
					Very hard						
					End at 16.5 feet. Free water encountered below 6 feet Bore left open to determine static water level.						
17.00											
18.00											
19.00											
20.00											

Garage; Allen Residence; 1155 Sombria Lane, Pebble Beach

Boring No. 3

June 09, 2020

Depth	Symbol	Sample	Field BlowCount per 6 Inch	Standard Pen. Burmister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00					Gravel Surface						
					(CUTTINGS) Dark grayish brown | SAND; fine; granite base; subround to round | few to clots of some: silt and silty clay | moist; loose to medium dense at 1.5 feet.						
1.00	SM										
2.00											
					Some cementation						
3.00											
	SM				(CUTTINGS) Pale olive brown | SAND; fine; granite base; subround to round | few-little: clayey silt | moist; medium dense.						
4.00											
	1 hr GW 4.5										
5.00	5 min GW 5.3										
					Darkens in color some, Medium grayish brown						
6.00											
7.00											
	SP				(CUTTINGS) Yellowish brown | SAND; fine; granite base; subround to round | few: silt/clay; occ. clots with few | damp (increasing); medium dense.						
8.00											
9.00											
10.00											
11.00					Starting to take up						
	ROCK				(CUTTINGS) Speckled; Pale yellow; gray; black | WEATHERED GRANITE | CUTTINGS; SAND; fine to medium; granite base; angular to subangular | very damp (free water on top of); very dense-hard.						
12.00											
13.00											
14.00											
					Becoming hard						
15.00											
16.00											
					Very hard						
17.00											
					End at 17.5 feet. Free water below 4.5 feet.						
18.00					Bore left open for 10 minutes to determine static water level. Bore backfilled with cuttings at end of exploration.						
19.00											
20.00											

Garage; Allen Residence; 1155 Sombria Lane, Pebble Beach

Boring No. 4

June 09, 2020

Depth	Symbol	Sample	Field BlowCount per.6 inch	Standard Pen. Burmister	Description	Auger Pen.	Density	Moisture	Unconfined	Cohesion	Shear
0.00					Gravel Surface						
					(CUTTINGS) Yellowish brown | SAND; fine; granite base; subround to round | trace: silt | moist; medium dense.						
1.00	SM										
2.00											
3.00											
4.00											
5.00	30 min										
	GW										
	5.2										
	5 min										
6.00	GW				(CUTTINGS) Dark olive-grey brown | SAND; fine; trace to medium - coarse; granite base; subround to round | few: silt/clay; occ. clots with few very damp (increasing); medium dense.						
	6.1										
	SM										
7.00											
8.00											
9.00											
	ROCK				Weathered granite clasts or granit (CUTTINGS) Speckled; Pale yellow; gray; black | WEATHERED GRANITE | CUTTINGS; SAND; fine to medium; granite base; angular to subangular | very damp (free water on top of); very dense-hard.						
					Firming with depth						
10.00											
11.00					Starting to take up, appears to be decomposed granite clasts						
12.00											
					Very firm-hard						
13.00											
					Hard						
14.00											
					End of bore at 14.0 feet. Free groundwater encountered below 5 feet. Bore left open for observation of static water level.						
15.00											
16.00											
17.00											
18.00											
19.00											
20.00											

SOIL CLASSIFICATION CHART
conforms to Unified Soils Classification and ASTM D2487

UNIFIED SOIL CLASSIFICATION & ASTM D2487: INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES Excluding particles larger than 3 inches and basing fractions on estimated weights						GROUP SYMBOLS N.	TYPICAL NAMES	INFORMATION REQUIRED FOR DESCRIBING SOILS
COARSE GRAINED SOILS More than half of material is larger than No. 200 sieve size is (The No. 200 sieve size is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.			GW	Well graded gravels, gravel-sand mixtures, little or no fines.	Give typical name, indicate approximate percentages of sand and gravel, max. size; angularity, surface condition, and hardness of the coarse grains; local or geologic name and other pertinent descriptive information, and symbol in parentheses. For undisturbed soils add information on stratification, degree of compactness, cementation, moisture conditions and drainage characteristics. EXAMPLE: **Silty Sand,** gravelly; about 20% hard, angular gravel particles $\frac{1}{2}$ inch maximum size; rounded and subangular sand grains coarse to fine, about 15 % non-plastic fines with low dry strength, well compacted and moist in place, alluvial sand; (SM).
			Predominatly one size or a range of sizes with some intermediate sizes missing.			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.	
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).			GM	Silty gravels, poorly graded gravel-sand-silt mixtures.	
			Plastic fines (for identification procedures see CL below).			GC	Clayey gravels, poorly graded gravel-sand-clay mixtures.	
	SANDS More than half of coarse fraction is smaller than No. 4 sieve size	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.			SW	Well graded sands, gravelly sands, little or no fines.	
			Predominatly one size or a range of sizes with some intermediate sizes missing.			SP	Poorly graded sands, gravelly sands, little or no fines.	
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for idendification procedures see ML below).			SM	Silty sands, poorly graded sand-silt mixtures.	
			Plastic fines (for identification procedures see CL below).			SC	Clayey sands, poorly graded sand-clay mixtures.	
	IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN No. 40 SIEVE SIZE							
			DRY STRENGTH (CRUSHING CHARACTERISTICS)	DILATANCY (REACTION TO SHAKING)	TOUGHNESS (CONSISTENCY NEAR PLASTIC LIMIT)			
FINE GRAINED SOILS More than half of material is smaller than No. 200 sieve size	SILTS AND CLAYS Liquid limit less than 50		None to slight	Quick to slow	None	ML	Inorganic silts and very vine sands, rock flour, silty or clayey fine sands withg slight plasticity.	Give typical name, indicate degree and character of plasticity, amount and maximum size of coarse grains, color in wet conditions, odor if any, local or geologic name, and other pertinent descriptive information, and symbol in parentheses. For undisturbed soils add information or structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions. EXAMPLE: **Clayey silt**, brown, slightly plastic, small percentage of fine sand, numerous vertical root holes, firm and dry in place, loess; (ML).
			Medium to high	None to very slow	Medium	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
			Slight to medium	Slow	Slight	OL	Organic silts and organic silt-clays of low plasticity.	
	SILTS AND CLAYS Liquid limit greater than 50		Slight to medium	Slow to none	Slight to medium	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
			High to very high	None	High	CH	Inorganic clays of high plasticity, fat clays.	
			Medium to high	None to very slow	Slight to medium	OH	Organic clays of medium to high plasticity.	
HIGHLY ORGANIC SOILS			Readily identified by color, odor, spongy feel and frequently by fibrous texture.			Pt	Peat and other highly organic soils.	

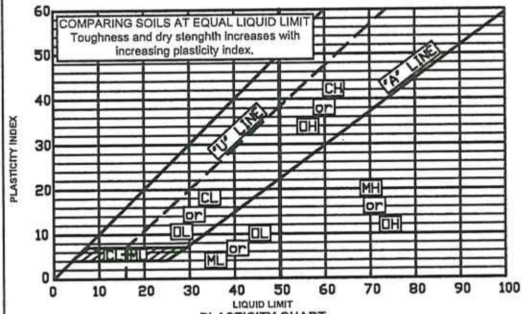
LABORATORY CLASSIFICATION CRITERIA

Use grain size curve in identifying the fractions as given under field identification.

Determine percetages of gravel and sand from grain size curve.
Depending on percentage of fines (fractin smaller than No. 200 sieve size) coarse grained soils are classified as follows:

Less than 5%	GW,GP, SW, SP
More than 12 %	GM, GC, SW, SC
5% to 12%	Borderline cases requiring use of dual symbols.

$C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{(D_{10} \times D_{60})}$ Between one and 3	
Not meeting all gradation requirements for GW	
Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are **borderline** cases requiring use of dual symbols
Atterberg limits above "A" line or PI greater than 7	
$C_u = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{(D_{10} \times D_{60})}$ Between one and 3	
Not meeting all gradation requirements for SW	
Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are **borderline** cases requiring use of dual symbols
Atterberg limits above "A" line or PI greater than 7	



COMPARING SOILS AT EQUAL LIQUID LIMIT
Toughness and dry stenghth increases with increasing plasticity index.

PLASTICITY CHART
FOR LABORATORY CLASSIFICATION OF FINE GRAINED SOILS

N. **Boundary** classifications: Soils possessing characteristics of two groups are designated by combinations of group symbols. For examle GW-GC, well graded gravel-sand mixture with clay binder.
N. All sieve sizes on this chart are U.S. Standard.

FIELD IDENTIFICATION PROCEDURES FOR FINE GRAINED SOILS OR FRACTIONS

These procedures are to be performed on the minus No. 40 sieve size particles, approximately $\frac{1}{64}$ inches. For field classification purposes, screening is not intended; simply remove by hands the coarse particles that interfere with the test.

DILATANCY (Reaction to shaking)

After removing portions larger than No. 40 sieve size, prepare a pot of moist soil with a volume of about one-half cubic inch. Add enough water if necessary to make the soil soft but not sticky.

Place the pot in the open palm of one hand and shake horizontally, stricking vigorously against the other hand several times. A positive reaction consists of the appearance of water on the surface of the pot which changes to a livery consistancy and becomes glossy. When the sample is squeezed between the fingers, the water and gloss disappear from the surface, the pot stiffens and finnally it crackes or crumbles. The rapidity of appearance of water during shaking and of its diappearance during squeezing assist in identifying the character of the fines in a soil.

Very fine clean sands give the quickes and most distinct reactoin whereas a plastic clay has no reaction. Inorganic silts, such as a typical rock flour, show a moderately quick reaction.

DRY STRENGTH (Crushing characteristics)

After removing particles larger than No. 40 sieve size, mold a pat of soil to the consistency of putty, adding water if necessary. Allow the pat to dry completely by oven, sun, or air drying, and then test its strength by breaking and crumbling between the fingers. This strength is a measure of the character and quality of the colloidal fraction contained in the soil. The dry strength increases with increasing plasticity.

High dry strength is characteristic for clays of the CH group. A typical inorganic silt possesses only very slight dry strength. Silty fine sand and silts have about the same slight dry strength, but can be distinguished by the feel when powdering the dried specimen. Fine sand feels gritty whereas a typical silt has the smooth feel of flour.

TOUGHNESS (Consistency near plastic limit)

After removing particles larger that the No. 40 sieve size, a specimen of soil about one-half inch cube in size is molded to the consistency of putty. If too dry, water must be added and if sticky, the specimen should be spread out in a thin layer and allowed to lose some moisture by evaporation. Then the specimen is rolled out by hand on a smooth surface of between the palms into a thread about one-eight inch in diameter. The thread is then folded and rerolled repeatedly. Durning this manipulation the moisture content is gradually reduced and the specimen stiffens, finally loses its plasticitiy, and crumbles when the plastic limit is reached.

After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.

The tougher the thread near the plastic limit and the stiffer the lump when it finally crumbles, the more potent is the colloidal clay fraction in the soil. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay of low plasticity, or materials such as kaolin-type clays and organic clays which occure below the A-line.

Highly organic clays have a very weak and spongy feel at the plastic limit.

ADOPTED BY: CORPS OF ENGINEERS AND BUREAU OF RECLAMATION-JANUARY 1962

IO3-D-347

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Exhibit C

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Impact of Wildfires on LPG Tanks

Frédéric Heymes*[a], Laurent Aprin[a], Pierre Alain Ayral[a], Pierre Slangen[a], Gilles Dusserre[a]

[a]Laboratoire de Génie de l'Environnement Industriel et des Risques (LGEI), Institute of Risk Science (ISR), Ecole des Mines d'Alès, Alès, France
*frederic.heymes@mines-ales.fr

During wildland fires, wildland-urban interfaces may cause significant problems for emergency managers throughout the world. Several works focused on safety zones aiming to prevent houses to burn, but no work focused on the LPG tanks which can be located in the surroundings of houses. A finite elements modelling was developed to calculate safety distance preventing from BLEVE. The safety distances required by law in several countries (50 m; 30 m; 25 m) are checked. It appears that the required safety distances are correct to prevent the tank from BLEVE.

1. Introduction

Research on wildland fires focused traditionally on two main objectives: the prediction of the velocity at which a fire will spread and the estimation of the released heat from the flame front of the wildland fire. Both topics are key points in order to evaluate the gravity of the fire and to organize firemen intervention to fight the fire (Alexandridis et al., 2011).

The wildland-urban interface (WUI) may be defined as a contact zone between a natural zone such as a forest and a heavy or light urbanized area. At this interface, the threat to homes and their destruction during wildland fires, with associated concerns for life safety, are significant problems for emergency managers throughout the world. Due to the increasing urbanization of the surrounding countryside, the number of these areas is growing rapidly. In the last ten years, wildfires resulting in residential destruction occurred in Australia, Canada, Mediterranean countries and the United States. The WUI areas are complex systems, difficult to manage, especially in the context of wildfire prevention.

(Butler, 1974) contributed the first description of urban wildland interface not in geographic terms but in terms of fire process. He defined that interface as the occurrence of fire spreading from wildland fuel (vegetation) to urban fuel (homes), in terms of the wildland fire becoming close enough for its flames and (or) its firebrands (lofted burning embers) to contact flammable parts of a home or the home's immediate surroundings. The main question of his description is "How close is close enough for home ignition ?".

Well know operational models of fire spreading (for example BEHAVE, FIRE CODE, FORE FIRE models) are no longer valid in the urban interface. Some authors coupled wildfire dynamics with structure ignition models. (Cohen, 2000) proposed the Structure Ignition Model (SIAM). This model is based on strong assumptions, as the flame is assumed to be a uniform parallel-plane black body emitter. The flame-to-structure distance does not allow for flame contact. This model overestimates the heat received by the structure, as reported by (Porterie et al., 2007). These latter authors developed a three-dimensional physics-based model able to describe the near-field dynamics of a wildland fire, as well as its impact on structural elements. This model was validated by a prescribed burning and fire tunnel experiments. (Zarate

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et al., 2008a) proposed a study as a basis for establishing zones in which houses are safe in the event of fire. They considered several building materials such as wood, polyurethane, PVC and deduced safety distances which are useful both in terms of prevention and emergency planning, in the determination of adequate separations between houses and wooded areas. All these authors considered the concern of house ignition, but none considered the presence of a LPG tank in the surrounding of housing.

Liquefied Petroleum Gas (LPG) is a common fuel used for home heating, hot water production or cooking. This fuel is usually stored out of the house in pressurized cylindrical tanks of medium capacity (1 or 2 m^3). These tanks are not protected by passive protection layer against fire but are prevented from excessive pressure by a relief valve. However, when such a tank is exposed to external fire, there is a chance that the tank will fail despite the action of the pressure relief valve. If the failure mode is catastrophic then this could lead to a boiling liquid expanding vapour explosion (BLEVE). The immediate hazards from the BLEVE are blast and projectiles. Since LPG is flammable, a fireball is possible with the associated hazards of fire engulfment and thermal radiation. If the LPG is not ignited immediately, delayed ignition may lead to widespread fires or in some cases explosions. A well know example of LPG tank located close to a fire and entailing a BLEVE is the accident of Ste Elisabeth de Warwick, Canada, in 1993. A LPG tank was located close to a burning house and the tank suddenly circumferentially separated at its central girth weld. There were four fatalities and five injuries into the fireman group fighting the fire (Tan et al., 2003).

Physics of BLEVE is as following. The impacting heat flux leads to an increase of wall temperatures and therefore material weakening. Heat it also transferred to the liquid phase which increases the liquid temperature and the vapour pressure. This internal pressure increase leads to creep and thinning in the hot wall area and this may eventually lead to formation of a tear or fissure in the tank wall. If the tear propagates the entire length of the tank then a BLEVE takes place. If the fissure stops short, then a transient jet release takes place (Birk and Cunningham, 1994).

Determining whether or not a heated LPG tank will entail a BLEVE is a tricky task. The maximum wall temperature occurs when the liquid level is low in the tank, on portions of the vessel that are not internally wetted by the liquid content. The internal pressure results from LPG boiling, fluid temperature increase and stratification. Rupture occurs when internal pressure exceeds heated steel resistance. The pressure relief valve controls pressure but entails liquid mixing and therefore changes thermo-hydraulics of the system (Brambilla et al., 2010).

In order to draw the safety line between BLEVE issue or not, the American Petroleum Institute (API) considered the maximum radiant heat flux that the tank can undergo without bursting, considering that the pressure valve prevents from an excessive internal pressure. Below this level of radiant heat flux, the vessel can still be considered in a safe condition with the relief valve venting, since the shell metal will be below the threshold for stress creep rupture: the bulging, thinning and consequent rupturing of the shell. The API value for that is 7,000 British thermal units per hour per square foot (22 kW/m^2) (API 2510 publication, 1996). This value will be considered in this work to establish safety distances to prevent BLEVE from a tank submitted to a radiant heat flux from a wildfire.

An extended work was undertaken in order to study the safety distances to prevent from BLEVE, including real-scale experiments. This first piece of work focuses on the theoretical modeling of the heat flux transferred to the LPG tank and a discussion about safety zones that should be respected.

2. Theoretical part

2.1 Wildland fire radiation modelling

Modeling the radiative heat flux from a wildland fire to a target requires to know the emitted radiative power of the fire and to calculate the transmission of the radiative energy to the target by view factor considerations (Sacadura, 2005). The first point is a tricky task since the emitted power depends on many variables such as flame combustion kinetics and temperatures, flame thickness, emissivity of gases and soot. A popular approach to the estimation of the radiation flux from wildland fires is the use of the solid flame model (SFM). In this model, the visible flame is idealized as a solid body with a simple geometrical shape and with thermal radiation emitted from its surface. The contribution of non-visible zones of the fire plume to the radiant heat flux is usually not taken into account. Even if several authors (Wang, 2009),(Parent et al., 2010) suggest that this model may be questionable for wildland fires, the SFM model is easy to use and give results in acceptable agreement with experimental data (Butler and Cohen, 2000). In the SFM, the radiant heat flux per unit area reaching a remote target is given by:

$$q = \tau.F.E \tag{1}$$

Where F is the view factor, E the surface emissive power (SEP) of the visible flame, and τ the transmittivity of the air (of gas) layer between the flame and the target. The atmospheric transmittivity corresponds to the fraction of the thermal radiation that is transmitted from the fire to the target; it is function of the atmospheric humidity, the concentration of carbon dioxide and the distance, and can be calculated using semi-empirical equations. The worst case occurs when the transmittivity equals unity, this will be assumed in order to be in a conservative approach. The surface emissive power of the flame may be calculated as:

$$E = \varepsilon.\sigma.T^4 \tag{2}$$

Where ε is the effective emissivity of the flame, T is the flame temperature and σ is the Stefan Boltzmann constant. Data about SEP values can be found in the literature, the most valuable of them having been measured during the International Crown Fire Modeling Experiments (ICFME) (Butler and Cohen, 2000). These authors measured SEP on large crown fires of Jack pine trees (average height 12 m) in square forest squares (75-200 m side length). SEP measurements were taken at different heights: 3.1; 6.2; 9.2; 12.3 and 13.8 m. The authors averaged the data measured at theses heights on 6 experiments and concluded that the maximum peak radiant flux was nominally 190 kW.m^{-2} through the entire stand, with a standard deviation of 90 kW.m^{-2}. However, these values are only valid during the maximum fire intensity, which lasts a few seconds. When considering the effect of wildland forest fire radiation on a LPG tank, the considered time is much longer since the heat transfers and thermal inertia of fluids and steel are slower and a minimum time of several minutes is required in order to make the internal pressure increase. When averaging Butler data over the time of significant fire (SEP > 20 kW.m^{-2}), it appears that the average heat flux is 70 kW.m^{-2}. Others SEP values can be found in literature, such as 57 kW.m^{-2} (Billaud et al., 2011), 118 kW.m^{-2} (Zarate et al., 2008b), 90 kW.m^{-2} (Trabaud, 1992), 60 kW.m^{-2} (Leicester, 1988). In this study, we considered that 90 kW.m^{-2} was realistic.

The view factor E is defined as the fraction of the radiation leaving a surface A that is intercepted by a surface B. Oriented elemental areas dA and dB are connected by a line of length R, which forms the polar angles θ_A and θ_B , respectively, with the surface normal vectors $\mathbf{n}_A$ and $\mathbf{n}_A$. The values of R, θ_A and θ_B vary with the position of the elemental areas on A and B. Assuming that both surfaces emits and reflects diffusely, and that the radiosity is uniform, the view factor can be defined as :

$$F = \frac{1}{A}\int_A \int_B \frac{cos\theta_A cos\theta_B}{\pi R^2} dAdB \tag{3}$$

Three different types of methods can be used in order to calculate or approximate this double integral. The first one is the exact or approximated analytical solution of the equation. This is the easiest way to proceed but analytical solutions were only proposed in simple configurations (Hollands, 1995, Van den Bosch and Weterings, 1997). The second method is a finite element method (FE method) whose accuracy depends mainly on the meshing thinness. This method is computing time consuming since the total calculation steps equals the multiplication of number of cells of A_i by A_j. The last method relies on Monte Carlo method (MC) which reduces the calculation steps by selecting stochastically cells in both areas in order to approximate the double integral. (Billaud et al., 2011) compared this latter method with an analytical equation in a simple case and revealed a good agreement of the two methods. In this work, since the considered geometric configuration is quite simple but that no analytical equation was found in the literature, the FE method was selected in order to approximate the impacting heat flux on the LPG tank. The FE solving of the previous equation is achieved by meshing the A surface into i cells (dA_i) and the B surface into j cells (dB_j). The equation can be written as:

$$F = \frac{1}{A}\sum_i \sum_j \frac{\cos\theta_{Ai}\cos\theta_{Bj}}{\pi R_{ij}^2} dA_i dB_j \qquad (4)$$

The accuracy depends strongly of the size of the cells and therefore, the number of cells which is time consuming.

2.2 Validation of the FE modeling

Before scaling the setup, the first point was to check the validity of authors' FE modeling. A relevant case study was found in (Billaud et al., 2011). This case study is a 20-m-wide vertical planar flame (height = H_f) front and a vertical small surface element located in front of the flame center at a varying distance from the flame. The receiving element was located at a distance x=15m from the flame front.

The view factor F was calculated a different x/H_f ratios with two Macguire analytical equations (MG1 and MG2 (McGuire, 1953)), the analytical equation of Van den Bosch and Weterings (Van den Bosch and Weterings, 1997), the MC calculation of Billaud et al. (2011) and the FE modelling (this work). Results are reported in Figure 1. As concluded by Billaud, the same trend is observed but a strong difference occurs with the MG1 and VW solutions and these solutions should not be used for the scaling. The FE calculation gives an intermediate result between MG2 and MC solutions, and reveals that the authors' model is in good agreement (less than 10%) with these previous works.

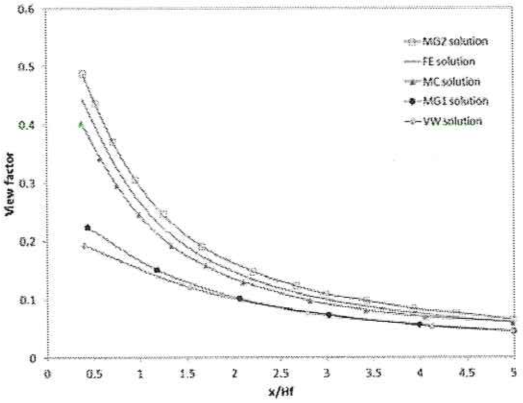


Figure 1: Comparison of differents view factor calculations at different x/Hf ratios

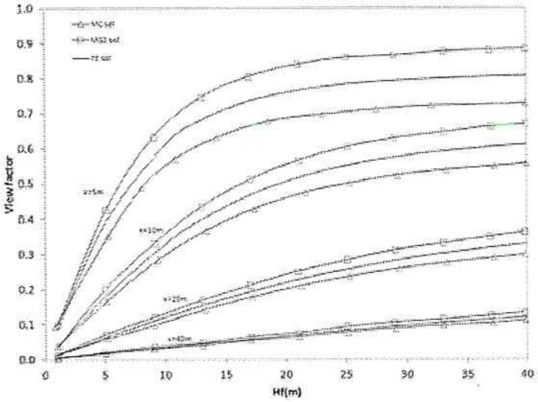
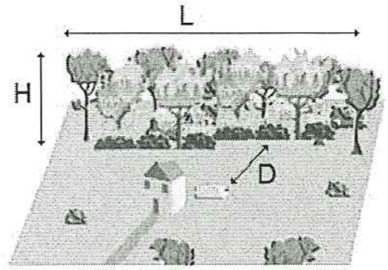


Figure 2: Comparison of McGuire, MC and FEM view factor calculation

The accuracy of the FE model with distance and flames height is reported in Figure 2. View factor calculations are in very good agreement for all fire heights when the fire is very far from the tank (x=40 m). The more the tank is closer to the fire, the higher is the deviation between models. At five meters, the deviation is 10 % between the FE model and both other models. The FE model is therefore relevant to calculate the effect of a distant fire radiation to a LPG tank.

3. Results and discussion

The FE model was used in order to calculate the maximum heat flux impacting a LPG tank. Three parameters where investigated: height H and length L of the firewall, distance D between the tank and the fire (Figure 3). For each calculation, all fluxes impacting the tank were calculated and a 3D matrix was filled with a mapping of local heat fluxes impacting the shell. An example of 3D sketch drawn from flux matrix is given in Figure 4. All values were compared in order to extract the highest value impacting the tank. This value was always located in the upper part of the tank. Iso-flux parametric curves were calculated. For each (distance; fire length) couple, the height of fire was sought in order to get 22 kW/m^2 at the LPG tank (Figure 5).



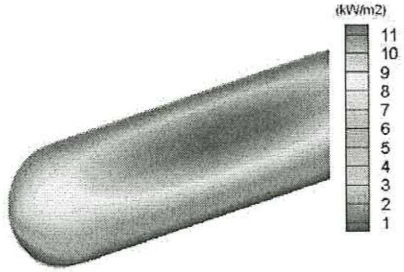


Figure 3: LPG tank located in WUI, submitted to a wildfire heat flux

Figure 4: 3D sketch of impacting radiant heat flux

The maximum height that a wildfire may reach is often considered as 20 m. However, this study considered a conservative approach and investigated a height up to 40 m. The length of the fire wall depends on the geometric configuration of the surroundings of a house located close to a forest, and the local law requirements. Indeed, in several countries, the law obliges homeowners to clear the undergrowth within a distance from their house in order to stop the fire and prevent it from burning the house. For example in France this distance equals 50 m, in the US it is 30 m in high risk areas whereas in Spain this distance is reduced to 25 m. A maximum firewall length of 100 m was considered.

Results of the FE model confirm that a safety distance of 50 m prevents from BLEVE with a conservative approach in any fire scenario, even if the crown fire is exceptional (height 40 m, length 100 m). However, several authors consider that the maximum fire height is only 20 m. In that assumption, a safety distance of 30 m is sufficient to prevent any BLEVE risk. Reducing this distance to 25 m could be considered as not safe. But one should not forget many assumptions of this work:

- The entire firewall burns on its entire length and height during the time required to lead to a BLEVE. This time is known as longer than the few minutes of intense combustion of the wildfire.
- The safety zone will probably not be totally free of trees and a screen effect has to be considered.

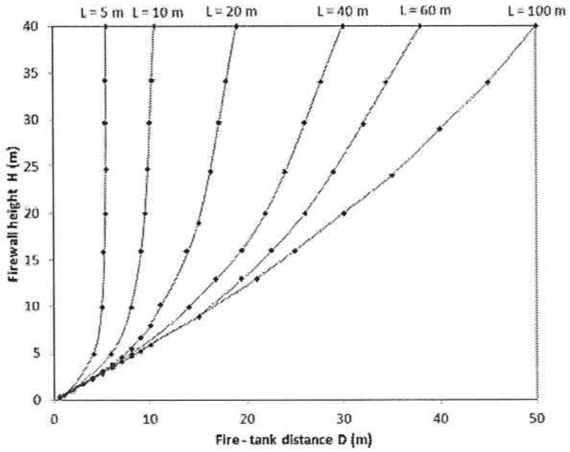


Figure 5: Safety distance as a function of firewall height and length

On an another hand, when the fire is as close as 3 m from the tank (frequent mandatory distance between a tank and its combustible surroundings), results show that a small fire of 2 m high and 5 m long (for

#1

example a house or a hedge fire) can entail a heat flux higher than 22 kW/m^2. This is evidence that even if a safety zone is respected between the forest and the tank, the BLEVE could occur if fire brands ignite combustible located close to the tank or the house itself.

4. Conclusion

The impact of a forest crown fire on structures was previously studied but no study focused on LPG tanks. In areas where wildfire risk is high (south of Europe, US, Canada, Australia for example) the possibility of a LPG tank to be located close to the fire is a major risk for fire fighter and population. A finite elements model was developed and tested versus a literature case study. The agreement with several others works was good. This model was then used to calculate the maximum heat flux impacting a LPG tank as a function of distance, height and length of firewall. Results showed that a mandatory safety distance of 50 m is sufficient to prevent from BLEVE in any case of wildfire. Safety distances of 30 and 25 m should prevent from BLEVE in most cases of wildfire. However, even if a safety zone is respected, care has to taken to avoid fuel in a 3 m zone around the tank. Ignition of this fuel could provoke the BLEVE.

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Exhibit D

LOCAL NEWS

‘The houses are a part of us’: In Boulder Creek, an evacuated town assesses what flames took and what remains

CZU Lightning Complex destroys dozens of homes in small San Lorenzo Valley community

The home Andrew Wilson lived in with his father on North Spring Creek Road in Boulder Creek is gone, among more than 600 houses destroyed by the CZU Lightning Complex fire. (Shmuel Thaler — Santa Cruz Sentinel)

By **NICHOLAS IBARRA** | nibarra@santacruzsentinel.com | Santa Cruz

Sentinel
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BOULDER CREEK — One was home to Andrew Wilson since he was brought there after his birth nearly four decades ago. It was where he still lived, returning as an adult while enrolled in nursing school to live with his father deep in the redwoods of the Santa Cruz Mountains.

One was home to Mary Beth Curley, husband Tony Burgess and their two teenage children — a spacious house near the golf club, with a rumpus room downstairs.

One was home to Jon Payne and his wife, Elizabeth, a lively compound serving as an informal local music venue with a just-finished recording studio and his bandmates living on the property nearby.

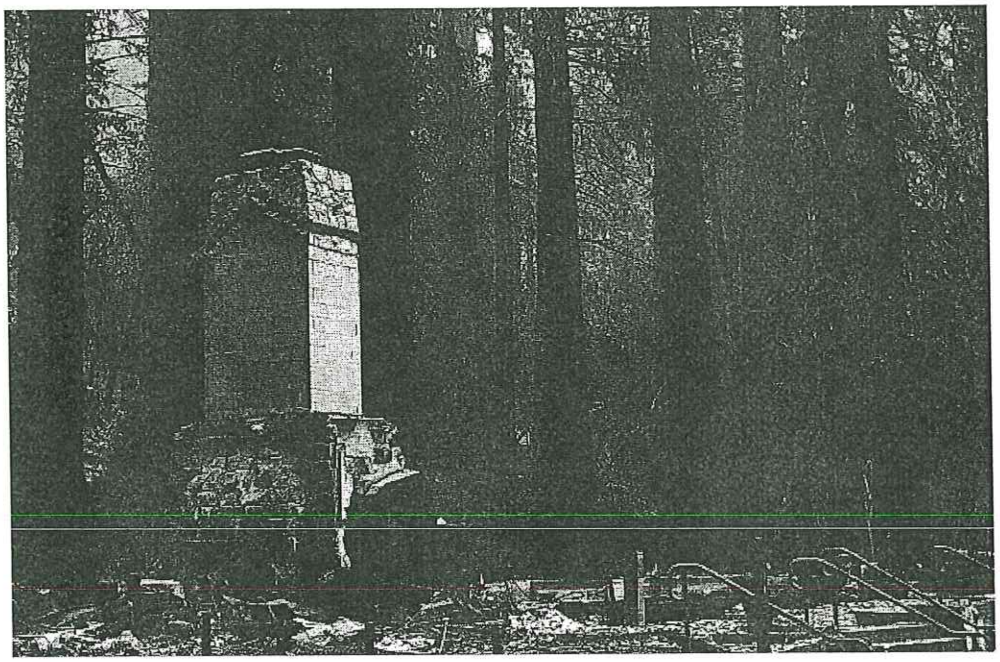
Every home has a story. In few places is that as true as a pridefully eccentric town such as Boulder Creek, a former logging community now standing as a gateway to Big Basin State Park and a slow-moving escape from the rush of the Bay Area.

“A lot of the houses are not cookie cutter,” said Wilson, 37. “The houses are a part of us. They’re a part of who we are because they’re all so unique, and everybody puts their own stamp on their house.”

Each of their homes now sits as a pile of ash and debris, consumed by the flames of the CZU August Lightning Complex fire along with more than 600 others, almost all of which stood in rural areas of Santa Cruz County.

It amounts to a loss without any precedent for the region since the Loma Prieta Earthquake in 1989. Flames from more than 20 fires sparked by lightning Aug. 16 burned down the North Coast and swept across the southern reaches of San Mateo County, through Big Basin State Park, across wide swathes of Bonny Doon and well into the outskirts of Boulder Creek.

Flames torched more than 83,000 acres and 899 structures, and counting, including Big Basin's headquarters.



The brick and stone chimney, metal railings and the cement slab are all that remain of park headquarters after the CZU August Lightning Complex ravaged Big Basin Redwoods State Park. (Shmuel Thaler — Santa Cruz Sentinel)

Some rural neighborhoods were left decimated, while in others many homes still stand, some with yards entirely unblemished — islands of green amid oceans of black.

Many fire-scorched areas remained evacuated Saturday as the fire still burns and fallen trees, downed power lines and damaged roadways create persistent threats. But days after the first damage map was released, many of the town's residents have already begun the long process of assessing what was lost, and what remains.

"It was a place that really gave refuge to all kinds of people," Burgess said, worrying that not everyone in the community will be able to afford to recover and rebuild. "The saying goes, 'We're all here because we're not all there.' Everyone in Boulder Creek was a little different."

A former lumber town, Boulder Creek is home to nearly 5,000. Its downtown stands unharmed thanks to the concentrated effort of Cal Fire crews that worked around the clock to keep flames from overrunning the string of San Lorenzo Valley communities. Dozens of homes in the town's outskirts, and to its north and west, were destroyed.

"The impacts are devastating, and my heart hurts for all those that are actually finally getting pictures of their homes that are lost," said Kevin Foster, a pillar of the Boulder Creek community and founder of its most popular social media group, Boulder Creek Neighbors.

The private Facebook group has added more than 500 new members since the fire ignited and has become even more of a hub for sharing information, support and grief while evacuated.

Foster, an area CERT founder, has seen the damage firsthand as he works to feed and rescue animals and pets from behind the roadblocks. As extensive as it is, he said he is confident the community will rally together and heal.

"The community is showing a bunch of compassion for those that have lost their homes, and we will all come together and through it together, and lift each other up and help in any way we can," Foster said.

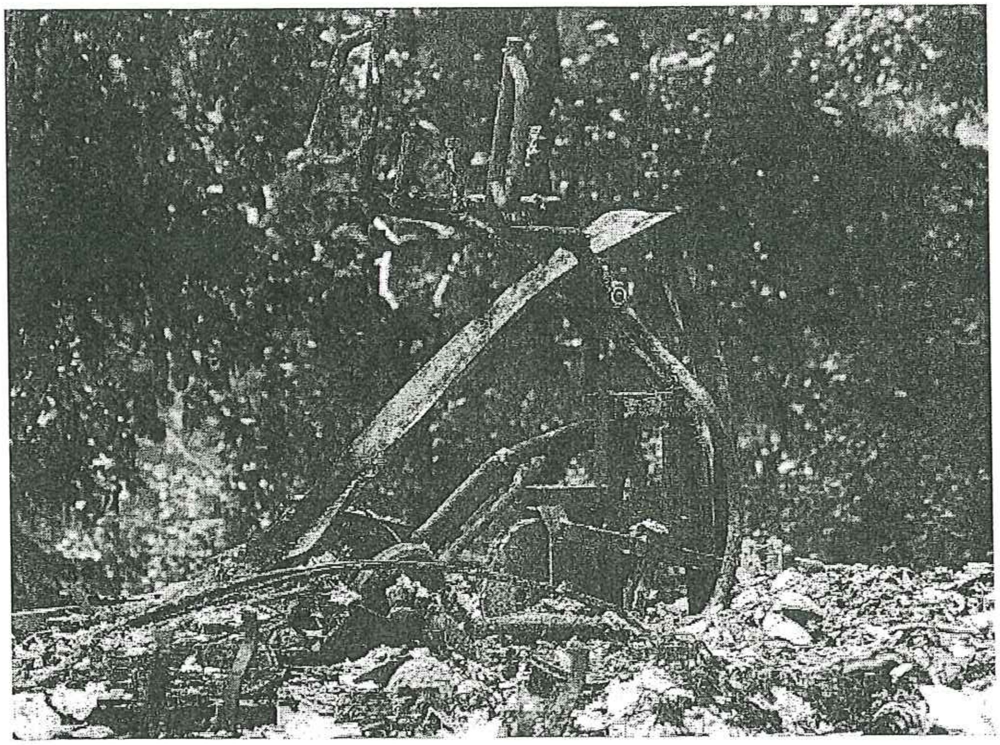
Not everyone may decide to stay. "There are those that will rebuild, and there are those that this may be their final decision to leave the area — because it's always on everybody's mind to leave California," Foster said.

'Great sea of stuff'

When Burgess and his family got the evacuation call late Tuesday night they only took time to grab the pets, passports, laptops and toiletries. First they fled to a friend's house not far away, expecting a more limited evacuation as had been the case with fires of years past. But just as they were settling in, that home, too, was ordered to evacuate.

Burgess had had a few drinks that evening, so his son, with his learner's permit, was behind the wheel. "He drove my stick-shift car with the animals in it over Bear Creek Road and (Highway) 17 to Los Gatos."

Two days later, they learned the neighborhood had been hit hard by the fire and their home was likely destroyed. But it wasn't until the following Thursday they saw a photo of what was left of their home.



The skeleton of exercise equipment stands in the remains of the home of Mary Beth Curley and Tony Burgess, on Everest Drive in Boulder Creek. (Shmuel Thaler — Santa Cruz Sentinel)

The family considers itself lucky, relatively speaking, to be put up in a comfortable hotel suite by its insurance and with a long-term rental already lining up. The loss of their home, and likely everything left in it, still hasn't fully sunken in.

"There's always this sense that this is temporary, you're just going to go back home, and all your stuff is there," Burgess. "And even though you know that's not really true, it sort of colors your perception."

Of course there is grief, Burgess said. Especially for the things that can't be replaced — mementos connecting to his mother, all the way to his great parents. "That can hit in waves," he said. "But there is also this sense of being deracinated, being suddenly, sort of, unconnected. There used to be this great sea of stuff that stuck me in place. And so I do get this feeling of lightness, at times."

'We lost his flag'

Miles north of the Burgess' home, on a hilly 1 acre lot, the Wilsons' house had hundreds of steps leading up from its front deck — 212, based on a young relative's recent count. Wilson's childhood bedroom was a loft, and the house's wall contained cubbies they called "holes" that he used to be able to fit himself inside.

The flag draped over his grandfather's casket before it was given to his grandmother was kept in one of those cubbies. In a rush to evacuate, it was forgotten. Wilson can only assume it burned with the rest of the house. "It's heartbreaking that we lost his flag," he said. "That was one memento that we can't get back."

The Wilsons found out Monday their neighborhood had been decimated, a report from someone able to access behind the roadblocks followed by a grainy photo. The family owned another 48 acres lot behind the home they planned to sell, but now aren't sure what it'll be worth.

Wilson thinks his father, Ron, now in his 70s, will want to rebuild on the lot. But he's worried that all the burned trees could threaten the stability of the hillside, perhaps adding to the risk of mudslides when rains come this winter.

For now, he and his father are staying in a hotel provided by insurance. Like so many families in their position, they're also turning to their neighbors for support through a crowdfunding campaign as they continue to grapple with the loss.

"It's always just been our home base," he said. "Just the fact that it's gone — every part of it being gone is just hard."

As for Boulder Creek, Wilson thinks the stalwart community will recover because its downtown stands. What that recovery looks like remains to be seen.

"It depends on how Big Basin reopens," he said. "It depends on how the infrastructure is put back in place. It depends on the damage. It depends on, you know, a lot."

'Seeing it evaporate'

A children's therapist and musician, Payne, 41, has long had the dream of creating a haven for artists and musicians in the San Lorenzo Valley.

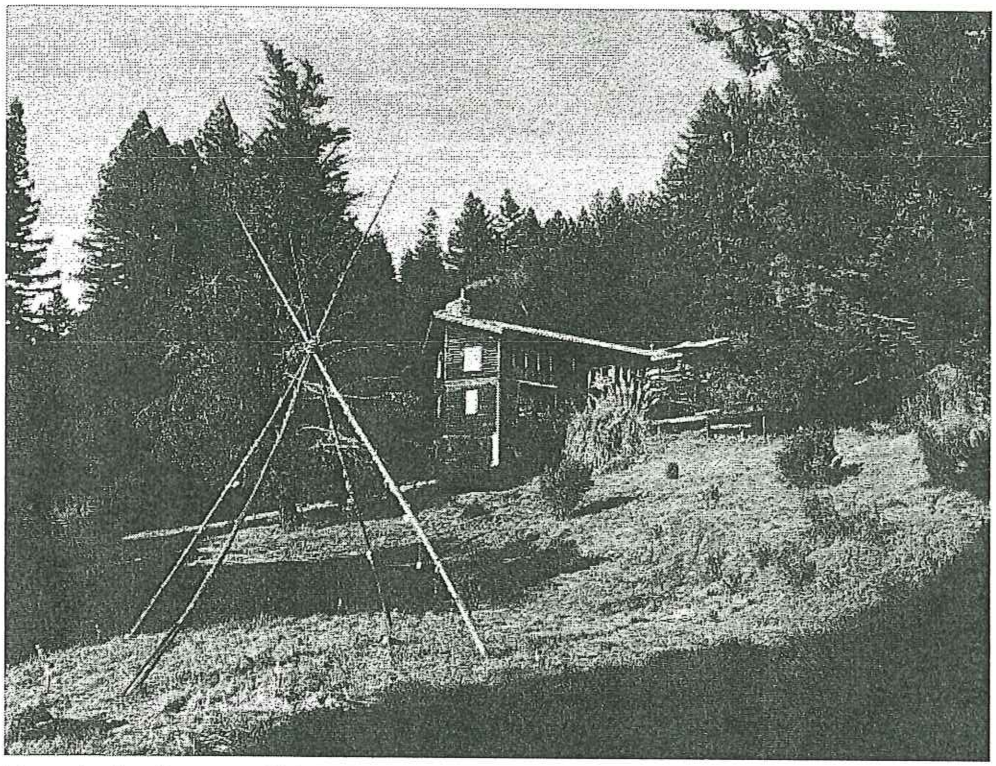
In 2017, he found the perfect place outside of Boulder Creek — a house built in the '70s by its original owners on Hill House Road, on a rare piece of clear land open to the sun and stars and with views of Eagle Rock and surrounding peaks. In addition to the main house, the property had a little cabin and friends living in two trailers. Guests came through frequently via AirBnB.

"It was really just a place where musicians gathered," Payne said, explaining he hosted house shows and concerts for acts from across the Bay Area and beyond. "A lot of the local Boulder Creek folks knew of our house, and they'd been to our house."

A statue is of Guan Yin, the bodhisattva of compassion and mercy, overlooks the remains of Jon Payne's home near Boulder Creek. (Contributed)

At first Payne and his wife seriously discussed moving out of the area, but he said they've since been overwhelmed with support from their community, a crowdfunding campaign, and even the house's original owners — all adding motivation to rebuild.

And at least one echo of that house remains to be heard. Payne and his band, Wolf Jett, recorded their upcoming album within its walls. "I had recorded a bunch of records in that living room, and this turned out to be the last one," he said. "As cheesy as it sounds, that living room is going to sing one last time."



Home to Jon Payne and his wife and a frequent venue for music, this house near Boulder Creek burned in the CZU August Lightning Complex fire. (Contributed)

Coping with COVID-19, Payne and his bandmate built a recording studio in the basement. With a mix of donated and purchased gear, they finished the studio a week before the house burned down.

Payne, his wife and the others living on the property evacuated as a helicopter flew overhead warning them of danger through a loudspeaker. From miles south in Felton, they watched as an eerie red glow crept over the horizon.

Payne was able to make a quick trip back the next day to grab a few more items as flames neared. He grabbed his grandfather's ashes, but his wife's engagement ring was left behind. Another neighbor who'd tried to stay fled as propane tanks exploded, and he realized the house was almost certainly gone. That was confirmed by video the next day.

"I'd worked my whole life for this kind of situation in this house, that we could provide for so many people and allow for so many friends and family to live there — it was just such an intense feeling just seeing it evaporate," Payne said.