

Exhibit F

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Shen Properties
9601 Blue Larkspur Lane
Tree Resource Assessment

Prepared for:

AST Design Group

Prepared by:

Frank Ono
Urban Forester
Member Society of American Foresters #48004
ISA Certified Arborist #536
1213 Miles Avenue
Pacific Grove, CA 93950

May 10, 2016

Owner:

Jianjun Shen, et al
609 St Paul Ave #440
Los Angeles Ca 90017

Architect and Contact:

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Urban Forester and Arborist

Frank Ono, Member SAF #48004, ISA Certified Arborist #536
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SUMMARY

Development is proposed to build a commercial office building and associated parking areas on this site. The project as submitted to me requires removal of 17 oak trees, two are dead for a total of 15 live oak trees due to the placement of the building, walkways, curb and gutter, and parking areas. No live Landmark trees sized (24" diameter or greater) were found to be removed. A tree resource assessment/arborist report has been prepared identifying these to be removed and affects the proposed project may have to the existing tree resources on site. The assessment also lists recommendations regarding remaining trees on the project.

INTRODUCTION

This tree assessment/arborist report is prepared for AST Design Group, the owner's representative for the property located at 601 Blue Larkspur Lane by Frank Ono, Urban Forester and Certified Arborist (member Society of American Foresters #48004 and International Society of Arboriculture Certified Arborist #536) due to the proposed construction. The Greater Monterey Land Use Plan and Monterey County Zoning Ordinance Title 21 identify Coast live oak trees as a species requiring protection and special consideration for management.

ASSIGNMENT/SCOPE OF PROJECT

To ensure protection of the tree resources on site, I have been requested for an assessment of the trees in proximity to proposed development areas. The findings of the report are to be documented in a report to work in conjunction with other conditions for approval of the building permit application. To accomplish this assignment, the following tasks have been completed;

- Evaluate health, structure and preservation suitability for each tree within or adjacent (15 feet or less) to proposed development of trees greater than or equal to six diameter inches at 24 inches above grade.
- Review proposed building site plans as provided by AST Design Group.
- Make recommendations for alternative methods and pre-construction treatments to facilitate tree retention.
- Create preservation specifications, as it relates to a Tree Location/Preservation Map.
- Determine the quantity of trees affected by construction that meet “Landmark” criteria as defined by the County of Monterey, Title 21 Monterey County Zoning Ordinance; as well as mitigation requirements for those to be affected.
- Document findings in the form of a report as required by the County of Monterey Planning Department.

LIMITATIONS

This assignment is limited to the review of plans submitted to me April 22, 2016 by AST Design Group to assess affects from potential construction to trees within or adjacent to construction activities. The assessment has been made of these plans specifically and no other plans were reviewed. Only minor grading and erosion details are discussed in this report as it relates to tree health. It is not the intent of this report to be a monetary valuation of the trees or provide risk assessment for any tree on this parcel, as any tree can fail at any time. No clinical diagnosis was performed on any pest or pathogen that may or may not be present. In addition to an inspection of the property, F.O. Consulting relied on information provided in the preparation of this report (such as, surveys, property boundaries, and property ownership) and must reasonably rely on the accuracy of the information provided. F.O. Consulting shall not be responsible for another's means, methods, techniques, schedules, sequence or' procedures, or for contractor safety or any other related programs; or for another's failure to complete the work in accordance with the plans and specifications.

PURPOSE AND GOAL

This tree resource assessment report is prepared for this parcel due to proposed construction activities located at 9601 Blue Larkspur Lane, Monterey CA. The purpose of the assessment is to determine the trees which will be affected by the proposed project. Oak trees are considered protected trees as defined by the County of Monterey, Title 21 Monterey County Zoning Ordinance unless otherwise proven to be an introduced or planted species.

The goal of this report is to protect and maintain the Greater Monterey Area forested resources through the adherence of development standards, which allow the protection, and maintenance of its forest resources. Furthermore it is the intended goal of this report to aid in planning to offset any potential effects of proposed development on the property while encouraging forest stability and sustainability, perpetuating the forested character of the property and the immediate vicinity.

SITE DESCRIPTION

- 1) Assessor's Parcel Number: 173-121-002-000.
- 2) Location: 9601 Blue Larkspur Lane, Monterey CA
- 3) Parcel size: 1.79 Acres.
- 4) Existing Land Use: The parcel is zoned for commercial use VO/B-6-UR-D-S.
- 5) Slope: The parcel ranges from mild to steep sloped. Slopes range from 5% to 30%.
- 6) Soils: The parcel is located on soils classified by the Monterey County Soils report as Santa Ynez fine sandy loam soils. The report states Santa Ynez series consists of moderately well drained soils that formed on terraces in alluvium derived from sandstone and granitic rock. Slopes range from 2-30%. Runoff is rapid, and the erosion hazard is high with this soil type. Roots can generally penetrate to a depth of 60 inches or more, but some roots are restricted to a depth of 15 to 30 inches by the clay subsoil. The available water capacity is 2.5 to 4 inches.
- 7) Vegetation: The vegetation on site is composed primarily of Coast live oak canopy with grasses and ice plant as understory.
- 8) Forest Condition and Health: The stand of trees and health are evaluated with the use of the residual trees combined with surrounding adjacent trees as a complete stand. Surrounding forest canopy is open and fragmented. This oak stand is degraded, many of which are in poor health and structural condition. Obvious factors in the degradation of trees are poor soils, previous grading, Phytophthora root crown fungus, Western oak bark beetle, and multiple California oak worm infestations.

BACKGROUND

Assessment focuses on incorporation of the preliminary location of site improvements coupled with consideration for the general goals of site improvement desired of the landowner. Proposed improvements assessed included preserving trees to the greatest extent feasible, maintaining the view shed and general aesthetic quality of the area while complying with Monterey County Codes. The study of individual trees determined treatments necessary to complete the project and meet the goals of the landowner. Trees within and immediately adjacent proposed development area were located, measured, inspected, flagged and recorded. The assessment of each tree concluded with an opinion of whether the tree should be removed, or preserved, based on the extent and effect of construction activity to the short and long term health of the tree. All meetings and field review were focused on the area immediately surrounding the proposed development.

OBSERVATIONS/DISCUSSION

The following list includes observations made while on site, and summarizes details discussed during this stage of the planning process.

- The site is disturbed with previous grading. It is semi-developed with curb and gutters installed as well street lighting and street storm drainage installed. There are obvious signs of previous tree failures and removals judging by several of the stumps observed.
- Oaks are scattered on the property with trees located along the perimeter appearing healthier than the mature trees in the center of the lot. A number of oaks located in the center of the lot are deteriorated or dead with obvious signs of western oak bark beetle frass on stems and trunks.
- Scenic easements located along the south and south western portion of the property and the utility easement located along the western perimeter of the property have healthy better condition trees located in groups which are to be retained. The site requires cut and fill to allow installation of the new building and its parking which will affect trees in the center portion of the lot.
- One landmark sized tree was noted on the site plan for removal, however ground truthing could not find the tree or evidence of its presence. It is indicated as being located within an area (near trees #524-524.1) where trees are severely declining or dead and more than likely previously removed.
- One double stemmed oak near the lower parking area designed to be saved is dead and only a remnant remains. Just upslope is a healthy double stemmed oak (537) which appears to be located in a walkway; efforts should be made for its potential retention by reconfiguring the walk to accommodate the tree.

TREE REMOVAL

The following chart portrays the trees observed during ground truthing. Trees are tagged in the field with round aluminum numbered tagged. Multiple stemmed trees which share a common root base and connected at the pith area of the root crown are treated as a singular tree. Trees for removal are indicated with an x in the remove column.

ID#	Diameter	Overall Condition	Comments	Remove
522	11	Good	One stem removed, Parking	x
523	14	Fair		x
524	13,13,13,15,16	Poor	Root Crown, Fungus	x
524.1	17	Dead		x
524.2	13	Dead		x
525	8,16	Fair		x
526	8	Fair	Not on survey	x
531	18	Poor	Uprooting	x
532	9	Fair	Parking Area	x
533	17	Fair	Parking Area	x
535	10	Fair	Parking Area	x
537	15,18	Good		x
539	13	Poor	Uprooting	x
540	7,7,7,6	Fair	Parking Area	x
541	6,7- 12	Fair	5 Stems, Parking area	x
542	14	Fair	Parking Area	x
543	9	Poor	Parking Area	x
527	10,12-14	Fair	5 Stems	
528	17,19	Fair	Decay at base	
529	12,14-15	Fair	3 Stems	
530	16	Fair		
534	10,12-16	Good	5 Stems	
536	14,16,19,24	Poor	Parking Area	
538	13- 19	Fair	3 Stems	
544	7,10-14	Fair	4 Stems, Thinning crown	
545	10,12-21	Poor	5 Stems, Crown die back, Hypoxylon	

PROJECT ASSESSMENT

Evaluation of potential for adverse environmental impacts due to tree removals are in the following subject areas:

Soil Erosion: Potential is low. Slopes where construction is proposed is gentle and appropriate erosion control measures will apply and can address potential impacts.

Water Quality: Tree removal at this site is unlikely to generate harmful substances that could be detrimental to the plant, animal or human environment. The redwood/oak association and stream is far down slope and will not be disturbed by construction.

Ecological Impacts: Negligible potential. No significant change in land use is proposed in this already developed rural residential area. The remaining native trees on the property will be retained.

Noise Pollution: Not a significant factor.

Air Movement: Removal of the trees will have little or no effect on the movement of air in this vicinity.

Wildlife Habitat: Negligible impact as site has some a developed residences surrounding the property and the vegetation on the site is somewhat degraded and open. Wildlife use in the area has been already conditioned by surrounding residential use.

Short Term Affects

Site disturbance will occur during building construction. Short term site affects are confined to the construction envelope and immediate surroundings where trees will be removed, some trees may be trimmed, and root systems reduced.

Long Term Affects

No significant long term affects to the forest ecosystem are anticipated as this area is already a developed commercial site. The project as proposed is not likely to significantly reduce the availability of wildlife habitat over the long term.

CONCLUSION

Tree removal (17 oak trees – no landmark size) will be unavoidable and necessary to develop this site due to construction as presented. The remainder of the property contains tree cover on the scenic and utility easements which will remain undisturbed. No watercourses are near the planned construction. Whenever construction activities take place near trees, the potential exists for those trees to experience decline in the long term as well. The greatest attempt has been made to identify for removal those trees likely to experience decline.

RECOMMENDATIONS

Pre-Construction Meeting

It is highly recommended that a project arborist be retained. Prior to the start of construction a meeting and training session must be conducted in order to be communicate and instruct personnel about tree retention and protection. The pre-construction meeting will include what will be required for tree protection and exclusionary fencing installed prior to grading, excavation and construction procedures. Meeting attendees will be all involved parties including site clearance personnel, construction managers, heavy equipment operators, and tree service operators; a certified professional such as a Monterey County qualified forester or County qualified arborist will conduct training. A list of pre-construction attendees and the materials discussed may be maintained to be provided to the County. Meeting attendees must agree to abide to tree protection and instructions as indicated during the meeting and agree to insure tree protection will remain in place during entire construction period.

Tree Removal

17 oak trees for removal are proposed for this project. All other trees are to remain and be protected from construction affects when closer than 25 feet from construction. After proper authorization, the trees shall be cut down by a licensed insured professional tree service. No surrounding tree protection is necessary when the tree drop zone is clear of vegetation. Tree removal shall be consistent with safe arboricultural work practices utilizing removal of trees and their parts in smaller manageable pieces and roped down carefully so as not to damage any surrounding trees or plants. The use of specialized equipment may be authorized if it can be shown that no damage to surrounding ecosystem will be sustained. At no time shall the trees be dropped in one piece so as to damage any surrounding trees or property. Tree wood and clippings are to be disposed of consistent with current California Department of Forestry guidelines which would include stockpiling of material on site or disposal at an approved refuse site. When the listed trees are removed, other immediately remaining trees adjacent these should be inspected for potential for pruning (utilizing current arboricultural standards) and deadwood removal.

Tree Replacement

The County of Monterey through the Greater Monterey Land Use plan has tree replacement conditions as part of a tree removal permit when sufficient space exists to replant that does not create an overcrowded vegetated situation. The County requires a 1:1 ratio replacement for trees measuring less than 24" in diameter and a 2:1 tree replacement for trees removed 24" in diameter or more. The site has ample space to accommodate tree replacement of 17 five gallon or larger oak trees and should be replaced on site according to a landscape plan prepared by a qualified landscape professional. In addition, the County also requires independent monitoring of replanted trees to insure replanting is successful (the term of monitoring is at County discretion, typically one –three years). For best success replanted trees should be placed on a temporary drip irrigation system and areas beneath them mulched to prevent them from drying out and minimize weed growth.

Tree Protection - Construction

Prior to the commencement of construction activities:

- Trees located adjacent to construction areas shall be protected from damage by construction equipment by the use of temporary fencing and through wrapping of trunks with protective materials.
- Fencing shall consist of chain link, snowdrift, plastic mesh, hay bales, or field fence. Existing fencing may also be used.
- Fencing must not be attached to the tree. It shall be free standing or self-supporting so as not to damage trees. Fencing shall be rigidly supported and shall stand a minimum of height of four feet above grade and extend out to the tree's dripline unless otherwise approved by the project arborist.
- Soil compaction, parking of vehicles or heavy equipment, stockpiling of construction materials, and/or dumping of materials is not be allowed adjacent to trees on the property especially within fenced areas.
- Fenced areas and the trunk protection materials must remain in place during the entire construction period.

During grading and excavation activities:

- All trenching, grading or any other digging or soil removal expected to encounter tree roots will be monitored by a qualified arborist or forester to ensure against drilling or cutting into or through major roots.
- The project arborist, during excavation activities is to direct any minor field adjustments that may be needed.
- Trenching for the retaining walls, foundations and driveway located adjacent to any tree will be done by hand where practical and any roots greater than 3-inches diameter bridged or pruned appropriately.
- Any roots that must be cut should be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, narrow trencher with sharp blades, or other approved root pruning equipment.
- Any roots damaged during grading or excavation should be exposed to sound tissue and cut cleanly with a saw.

If at any time potentially significant roots are discovered:

- The arborist/forester is authorized to halt excavation until appropriate mitigation measures are formulated and implemented.
- If significant roots are identified that must be removed that will destabilize or negatively affects the target trees negatively, the property owner or his representative will be notified immediately and a determination for removal will be assessed and made as required by law for treatment of the area which will not risk death decline or instability of the tree consistent with the implementation of appropriate construction design approaches to minimize affects, such as hand digging, bridging or tunneling under roots, etc..

Best Management Practices to Observe (BMP)

The following best management practices must be adhered to:

- A) Tree service Contractors will verify animal or bird nesting prior to tree work. If nesting activity of migratory birds are found, work must stop and a wildlife biologist consulted before commencing work (the typical bird nesting season ranges from February 22 to August 1).
- B) Do not deposit any fill around trees, which may compact soils and alter water and air relationships. Avoid depositing fill, parking equipment, or staging construction materials near existing trees. Covering and compacting soil around trees can alter water and air relationships with the roots. Fill placed within the drip line may encourage the development of oak root fungus (*Armillaria mellea*). As necessary, trees may be protected by boards, fencing or other materials to delineate protection zones.
- C) Pruning shall be conducted so as not to unnecessarily injure the tree. General-Principals of pruning include placing cuts immediately beyond the branch collar, making clean cuts by scoring the underside of the branch first, and for live oak, avoiding the period from February through May.
- D) Native live trees are not adapted to summer watering and may develop crown or root rot as a result. Do not regularly irrigate within the drip line of oaks. Native, locally adapted, drought resistant species are the most compatible with this goal.
- E) Root cutting should occur outside of the springtime. Late June and July would likely be the best. Pruning of the live crown should not occur February through May.
- F) Tree material greater than 3 inches in diameter remaining on site more than one month that is not cut and split into firewood must be covered with thick clear plastic that is dug in securely around the pile to discourage infestation and dispersion of bark beetles.
- G) A mulch layer up to approximately 4 inches deep should be applied to the ground under selected trees following construction. Only 1 to 2 inches of mulch should be applied within 1 to 2 feet of the trunk, and under no circumstances should any soil or mulch be placed against the root crown (base) of trees. The best source of mulch would be from chipped material generated on site.
- H) If trees along near the development are visibly declining in vigor, a Professional Forester or Certified Arborist should be contacted to inspect the site to recommend a course of action.

Report Prepared By:



Frank Ono, SAF Forester #48004 and ISA Certified Arborist #536

March 10, 2016

Date

PHOTOGRAPHS (not all trees are pictured, photographs are to indicate condition of canopy cover)

Trees to be retained, these are trees #527-#539



Declining trees in center of lot, these are trees #524 and #533 to be removed

Trees to be removed trees around and near #536



Tree #538 to be retained

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astdesigngroup.com

NEW OFFICE COMPLEX

FOR:

SHEN PROPERTIES

9901 Blue Larkspur Lane

San Jose, CA 95128

MONTEREY, CALIFORNIA

32480 CIVITON COMPLEX

A.P.N.: 173-121-003

DRAWING:

CIVIL PLAN

DRAWN BY: AST

REVISION DATE: April 27, 2016

DATE: 12-22-2015

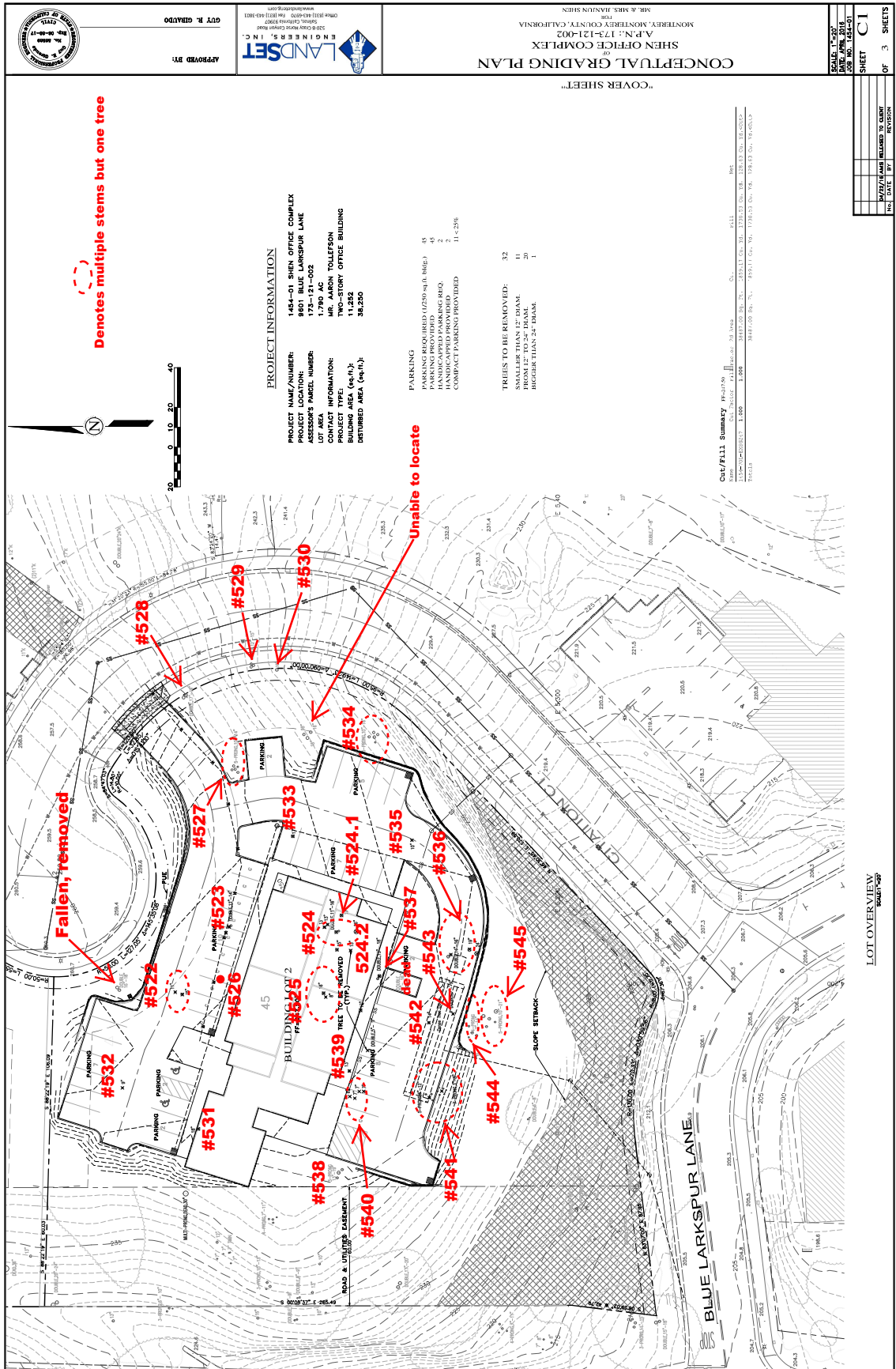
DATE: 04-27-2016

JOB NO: 1604-01

SHEET

C1

OF 3 SHEETS





520-B Crazy Horse Canyon Rd.
Salinas, CA 93907
TEL: 831-443-6970
FAX: 831-443-3801

**SOIL ENGINEERING INVESTIGATION
FOR THE
SHEN OFFICE COMPLEX
(APN'S 173-121-002 & 173-121-003)
CITATION COURT
LOTS 2 & 3, LAGUNA SECA OFFICE PARK
MONTEREY COUNTY, CALIFORNIA
PROJECT 1454-02**

Prepared for

MR. & MRS. JIANJUN SHEN
C/O AST DESIGN GROUP
957 ANGELUS WAY
DEL REY OAKS, CALIFORNIA 93940

Prepared by

LANDSET ENGINEERS, INC.
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(831) 443-6970

JULY 2015



July 29, 2015

File No.: 1454-02

Mr. & Mrs. Jianjun Shen
c/o AST Design Group
957 Angelus Way
Del Rey Oaks, California 93940

Attention: Mr. Aaron Tollefson

SUBJECT: SOIL ENGINEERING INVESTIGATION
Shen Office Complex (APN's 173-121-002 & 173-121-003)
Citation Court – Lots 2 & 3, Laguna Seca Office Park
Monterey County, California

Dear Mr. & Mrs. Shen:


In accordance with your authorization, Landset Engineers, Inc has completed a soil engineering investigation for a proposed commercial/professional office development located at the Laguna Seca Office Park, Monterey County, California. This report presents the results of our field investigation, laboratory testing, along with our preliminary conclusions and recommendations for site development.

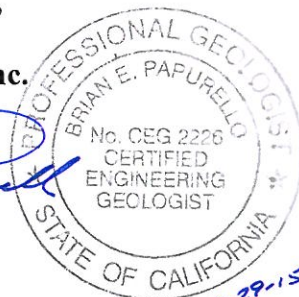
It is our opinion that the proposed development is feasible from a soil engineering standpoint provided the recommendations included in this report are incorporated into the project plans, specifications, and implemented during construction. The preliminary conclusions and recommendations included herein are based upon applicable standards at the time this report was prepared.

It has been a pleasure to be of service to you on this project. If you have any questions regarding the attached report, please contact the undersigned at (831) 443-6970.

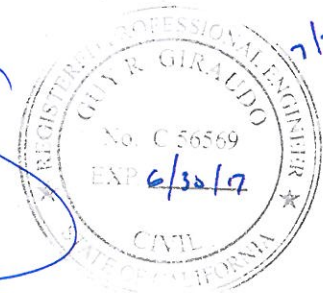
Respectfully submitted,

LandSet Engineers, Inc.


Brian Papurello
CEG 2226




Guy R. Giraudo
RCE 56569



Distribution: Addressee (3)

Doc. No.: 1507-121.SER

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INTRODUCTION

This report summarizes the findings, conclusions and recommendations for our soil engineering investigation for a proposed commercial/professional office complex development located off of Citation Court in the Laguna Seca Office Park area of Monterey County, California (see Vicinity Map, Figure 1).

PURPOSE AND SCOPE OF SERVICES

This soil engineering investigation has been prepared to explore surface and subsurface soil and groundwater conditions at the site, and provide soil-engineering criteria for design and construction of the project.

The conclusions and recommendations of this report are intended to comply with Chapter 18 of the 2013 California Building Code (CBC). The test procedures were accomplished in general conformance with the standards noted, as modified by standard soil engineering practice in this area. Our scope of services included:

1. A visual site reconnaissance.
2. Review of available soil engineering data in our files pertinent to the site.
3. Exploration, sampling and classification of the surface and subsurface soils by means of drilling 15 exploratory borings to depths ranging from 6.0 to 16.5 below the ground surface.
4. Laboratory testing of selected soil samples collected from the exploratory borings to determine their pertinent engineering and index properties.
5. Engineering analysis of the information collected based on the results of the field exploration; laboratory testing program and review of published and unpublished studies in the general area of the site.
6. Preparation of this report summarizing our findings and soil engineering conclusions and recommendations for site preparations, grading and compaction, foundations, utility trenches, slabs-on-grade, retaining walls, general site drainage, and erosion control.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject area consists of two commercial parcels (APN's 173-121-002 & 173-121-003). The site is located off of Citation Court in the Laguna Seca Office Park development, adjacent to York Road, Monterey County, California (Figure 1). The overall site (Lots 2 & 3) consists of two irregular shaped parcels totaling approximately 3.4-acres (Figure 2). The site is bounded by undeveloped lands to the north, Blue Larkspur Lane to the south, Citation Court & undeveloped land to the east and York Road to the west. Vegetation consists of scattered oaks and grassland.

The site is situated on the westerly flank of a north-south ridgeline with gentle to moderate (10% to 25%) generally southwest facing descending slopes. Overall topographic relief on the site is approximately 85-feet. Natural drainage is generally via sheet flow to the south and southwest. However, it was noted during our field exploration that a culvert extends offsite from adjacent Lot 4, which outlets on the northeasterly portion of Lot 3. From this point, runoff flows on the surface in a southwesterly direction across Lot 3 directed toward a concrete inlet structure located on the easterly side of the York Road right-of-way adjacent to Lot 2. Evidence of past grading activity was observed in the northwesterly portion of Lot 2 (Exploratory Boring B-4) as indicated by the presence of undocumented fill with associated underground piping of unknown purposes.

Proposed site development will encompass the construction of a total of four (two on each lot) 10,000-ft² two-story commercial/professional office buildings. Other proposed development will consist of vehicle drives & parking lots, site retaining walls along with associated underground utility infrastructure and surface & subsurface drainage improvements. Review of conceptual grading plans indicates that the proposed office buildings will be constructed on a cut/fill building pads with cuts and fills up to 15 feet and 10 feet respectively.

FIELD EXPLORATION

A total of 15 exploratory borings were drilled on the site from May 27 to May 29, 2015 at the approximate locations shown on the Boring Location Map, Figure 2. The borings were drilled using a truck mounted Mobile Drill rig, Model B-24, equipped with a 4-inch outside diameter solid stem auger. The exploratory borings were drilled to depths ranging from 6.0 to 16.5 feet below the ground surface. The borings were logged in the field by a Certified Engineering Geologist from our office. Upon completion of drilling, the holes were backfilled with native soil cuttings.

Soils encountered in each exploratory boring were visually classified in the field and a continuous log was recorded. Visual classifications were made in general accordance with the Unified Soil Classification System and ASTM D2487. Logs of the borings can be found in Appendix A (Figures A4 through A18). Appendix A also contains a Key to the Unified Soil Classification System, Key to Log of Borings, and soil terminology (Figures A1 through A3).

Soil samples were obtained by drilling to the desired depth and then driving a 3-inch OD Modified California Sampler or a 2-inch OD Standard Penetration Test sampler. The samplers were driven into the ground using the force generated by a 140-pound hammer dropping freely through a distance of 30-inches. The number of blows required to drive the last 12-inches of an 18-inch sampler were recorded as penetration resistance (blows/foot) on the exploratory boring logs. The penetration resistance values were used to describe the consistency/density of the subsurface materials. In addition to the collection of driven samples, bulk soil samples were obtained and collected from the auger cuttings.

LABORATORY TESTING

Laboratory tests were performed to determine some the physical and engineering characteristics of selected soil samples from the various soil materials encountered in the exploratory borings considered pertinent to the design of the project. The tests performed were selected on the basis of the probable design requirements as correlated to the site subsurface profile. A summary of the laboratory test results is presented in Appendix B. A brief generalized description of the tests performed is presented below.

- ✱ Moisture-Density Determinations: This test was conducted on brass liner samples to measure their in-situ moisture contents and dry unit weights. The test results are used to assess the distribution of subsurface pressures and to calculate degrees of in-situ relative compaction.
- ✱ Atterberg Limits: This test was performed on an insitu sample, to determine its liquid limit and plastic limit index values. This test provides water content values for the sample's liquid and plastic phases. This test aids in determining the expansive potential and other engineering characteristics of the soil.
- ✱ Grain Size Distribution (Gradation) Analysis: Grain size distribution analyses were performed on a selected soil samples. The grain size distribution is used to determine the classification of the site soils. This information is used for foundation design & liquefaction analysis.

SUBSURFACE CONDITIONS

Subsurface constituents were similar to the depths explored in each of the borings. The upper two feet typically consists of loose to medium dense colluvial topsoil. Below a depth of two feet the site is underlain by semi-consolidated Plio-Pleistocene age Continental deposits to the maximum depth explored of 16.5 feet below the ground surface. These sediments consist of dense to very dense silty SAND and clayey SAND which is locally cemented in the uppermost part of the strata. Notable exceptions to the typical earth profile were encountered in borings B-3, B-4, B-5, B-10, B-11 and B-12. In said borings, thin lenses of fat and lean sandy CLAY of medium to high expansion potential was encountered at depths ranging from 2.0 to 4.0 feet below the ground surface. In boring B-4, the upper 2.5 feet consisted of undocumented fill material, resulting from past grading activities. In borings B-9 & B-12 the upper 2.0 to 4.0 feet consisted of alluvium

composed of loose to medium dense silty sand emplaced as a result of the presence of the previously noted man-made off-site drainage improvements located on adjacent Lot 4.

GROUNDWATER

Groundwater was not encountered in any of the exploratory borings drilled on the site. Local groundwater levels can fluctuate over time depending on but not limited to factors such as seasonal rainfall, site elevation, groundwater withdrawal, and construction activities at neighboring sites. The influence of these time dependent factors could not be assessed at the time of our investigation.

SUMMARIZED CONCLUSIONS

The following preliminary conclusions are drawn from the data acquired and evaluated during this investigation for the proposed project. Soil and groundwater conditions can deviate from the conditions encountered at the boring locations. If significant variations in the subsurface conditions are encountered during construction, it may be necessary for Landset Engineers, Inc. to review the recommendations presented herein, and recommend adjustments as necessary.

Site Suitability: In our opinion, the site is suitable from a soil engineering standpoint for the proposed development provided that the recommendations contained herein are implemented in the design and construction. The following preliminary conclusions and recommendations are presented as guidelines to be used by project planners and designers for the soil engineering aspects of the project design and construction. These conclusions and recommendations have been prepared assuming that Landset Engineers, Inc. will be retained to review proposed grading and foundation plans before construction, and to observe, test and advise during earthwork and foundation construction.

Soil Expansion: Atterberg limits tests performed on isolated samples of subsurface native soil materials resulted in plasticity index values of 29 to 36. These values indicate that some areas of the foundation bearing soils may locally have high expansion potential. Expansive soils

experience volumetric changes with changes in moisture content, swelling with increases in moisture content and shrinking with decreasing moisture content. These volumetric changes that the soil undergoes in this cyclic pattern can cause distress resulting in damage to concrete slabs and foundations. The potential causal effects of expansive soils can be mitigated if precautionary measures are incorporated into the construction procedures and methods. Footings are typically deepened to penetrate through the most expansive zone.

Grading: As the native earth materials that will be supporting the foundations typically have dense consistencies, deep remedial grading of the insitu native material is not considered necessary to improve the soils for foundation support. Therefore it is recommended that any undocumented fill and the top 18-inches of native soil be removed (subexcavated) down to firm native soil prior to fill placement.

Foundations: Based on the subsurface conditions encountered, the proposed office buildings may be supported by conventional foundation systems bearing entirely on firm and dense native earth materials or entirely on engineered fill, but not on a combination of both.

Liquefaction Potential: Liquefaction is the transformation of soil from a solid to a liquid state as a consequence of increased pore-water pressures in response to strong ground shaking generated during an earthquake. Based on our field investigation and research (Dupre', 1990), it is our opinion that the potential for liquefaction to occur on the site is very low.

Landsliding and Slope Stability: The site slopes visually appear to be grossly stable. Previous investigators have mapped no evidence of slope instability (Clark, Dupre' & Rosenberg, 1997). No evidence of past or present slope instability was noted to occur in the field as part of this study. The potential for landsliding to affect the project is low. Foundations should be setback from slopes and/or deepened in accordance with Chapter 18 of the 2013 CBC.

Surface Fault Rupture: The site is not located within an Earthquake Fault Zone as established in accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972 (Hart & Bryant, 1999). The potential for surface rupture to occur on the site is determined to be very low.

Dynamic Compaction & Compressibility: Dynamic compaction occurs when loose, unsaturated soils densify in response to ground shaking during a seismic event. It is our opinion that the potential for dynamic compaction is moderate. Based on the consistencies encountered during our field exploration and local site soil conditions, it is our opinion that the site soils exhibit very low compressibility characteristics.

Erosion: The soil materials underlying the proposed residence consist of semi-consolidated sandy soil with moderate erosion potential. Post construction drainage improvements should be implemented in the project design to minimize the potential effects of site runoff.

Total & Differential Settlement: Post construction total and differential settlements from static loading of foundations are expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about ¾-inch from seismic loading.

Seismic Design Parameters: For seismic design using the 2013 CBC, we recommend the following design values be used. The parameters were calculated using the U.S. Geological Survey Design Maps computer program and were based on the approximate center of the site located at 36.5738° N. latitude and -121.8078° W. longitude.

2013 CBC Seismic Design Parameters

Design Parameter	Site Design Value
Site Class	D – Stiff Soil
Spectral Acceleration Short Period	(S_s) = 1.455g
Spectral Acceleration 1 Second Period	(S₁) = 0.528g
Short Period Site Coefficient	(F_a) = 1.00
1 Second Period Site Coefficient	(F_v) = 1.50
MCE Spectral Response Acceleration Short Period	(S_{MS}) = 1.455g
MCE Spectral Response Acceleration 1-Second Period	(S_{M1}) = 0.792g
5% Damped Spectral Response Acceleration Short Period	(S_{DS}) = 0.970g
5% Damped Spectral Response Acceleration 1-Second Period	(S_{D1}) = 0.528g

RECOMMENDATIONS

Site Preparation and Grading

1. The soil engineer should be notified **at least five (5) working days prior to any site clearing or grading** so that the work in the field can be coordinated with the grading contractor and arrangements for testing and observation services can be made. The recommendations contained in this report are based on the assumption that Landset Engineers, Inc. will perform the required testing and observation services during grading and construction. It is the owner's responsibility to make the necessary arrangements for these required services.
2. Prior to grading, construction areas should be cleared of obstructions, vegetation and their associated root systems, undocumented fill, deleterious materials, and buried structures. Site clearing should be observed by a field representative of Landset Engineers, Inc. Voids created by the removal of materials or utilities described above should be called to the attention of the soil engineer. No fill should be placed unless a representative of this firm has observed the underlying soil.
3. Following site clearing and prior to the placement of fill, the native soil should be removed (overexcavated) to a minimum depth of 18-inches. Deeper subexcavation may be required if areas of soft, loose and/or undocumented fill soils are exposed. The actual depth of subexcavation shall be determined in the field by a representative of Landset Engineers, Inc., at the time of subexcavation operations. Building areas are defined, as the soils within and extending a minimum of 5 feet beyond the foundation perimeters.
4. The soils exposed by overexcavation should be scarified approximately 12 inches; moisture conditioned to a level above optimum moisture content, and recompact to a minimum of 90 percent of maximum dry density. The resulting surface may then be backfilled with compacted lifts of structural fill. Where referenced in this report, percent relative compaction and optimum moisture content shall be based on ASTM test D1557.

Areas to receive fill outside the building pad areas should be scarified and recompactd in a similar manner.

5. Structural fill, material should be placed in thin (6"-8") lifts, moisture conditioned to near optimum moisture content, and compacted to a minimum of 90 percent of maximum dry density. Prior to compaction, the soil should be cleaned of any rock, debris, and irreducible material larger than 3-inches in diameter. Structural fill is defined herein as a native or import fill material which, when properly compacted, will support foundations, pavements, and other fills without detrimental settlement or expansion. Structural fill is specified as follows:

Structural Fill

- ✱ Non-expansive native soil may be utilized, but import fill shall have a PI of less than 15.
 - ✱ Be free of debris, vegetation, and other deleterious material.
 - ✱ Have a maximum particle size of 3-inches in diameter.
 - ✱ Contain no more than 15% by weight of rocks larger than 2 1/2-inches in diameter.
 - ✱ Have sufficient binder to allow footing and unshored excavation without caving.
 - ✱ Prior to delivery to the site, a representative sample of proposed import should be provided to Landset Engineers, Inc. for laboratory evaluation.
6. In order to limit the potential for differential settlement, building and retaining wall foundations should not be supported on both fill and cut. Therefore, we recommend that the cut side of the building pad should be overexcavated (undercut). The proposed grading within the building area should be designed so that no more than 50 percent of differential fill thickness exists below foundations.
 7. If structural fill is to be placed on slopes steeper than 5:1 (horizontal to vertical), keyways should be established at the toe of the proposed fill slopes. The keyways should have minimum widths of 12-feet and should be sloped approximately 2% back into the

hillsides. The keyways and subsequent upslope benches should penetrate into sufficiently stable material as determined by the soil engineer at the time of grading.

8. If structural fill is to be placed on slopes steeper than 10:1, the slopes should be benched. The benches should have a minimum width of 12-feet and should be sloped approximately 2% back into the hillsides. The soil engineer will determine the depth, scarification, and recompaction of the bench bottoms at the time of grading.
9. The soil engineer should also observe keyways and benches to assess the need for subsurface drains (subdrains). Subdrains in other areas may also be recommended depending on the grading plan and site conditions observed at the time of grading.
10. Fill slopes should be constructed at a maximum finished slope inclination of 2:1 (horizontal to vertical). Fill slopes should be overfilled and trimmed back to competent material. Further compaction of exposed fill slope faces using sheepsfoot rollers or tracked equipment may be recommended by the soil engineer. Cut slopes should be constructed at a maximum inclination of 2:1. Proper drainage and revegetation of graded slopes is essential to ensure stability.
11. In areas to be paved, the upper 12 inches of subgrade soils and all aggregate base should be compacted to a minimum of 95 percent of maximum dry density. Aggregate base and subgrade should be firm and unyielding when proofrolled by heavy rubber-tired equipment prior to paving.

Foundations

12. The buildings should be supported by conventional continuous and spread (pad) footings bearing entirely on firm and dense native earth materials or entirely on engineered fill, but not on a combination of both. Footings should have minimum 18 inches (trenching depth) below lowest adjacent grade. Footings should be reinforced as directed by the architect/structural engineer.
13. Footings may be designed using a maximum allowable bearing capacity of 2,500 psf. This value may be increased by one-third for short-term loads such as wind or seismicity.
14. For calculating resistance to lateral loading, a friction coefficient of 0.30 may be assumed to act between the bottom of the foundations and the supporting soil. Where foundations are poured neat against excavated trenches, the engineered fill may be assumed to provide 350 pounds per cubic foot (ultimate value). Lateral support from soil that may later be excavated or used in landscaping near foundations should be neglected.
15. Post construction total and differential settlements from static loading of foundations are expected to be about 1-inch and ½-inch respectively. Post construction total and differential settlement of foundations is estimated to be about ¾-inch from seismic loading.
16. If expansive soils are encountered within the footing excavations, footings must be deepened to penetrate through the expansive soils. The foundation excavations must be observed by a representative of this firm to determine if remedial activities operations are required at the time of foundation construction.
17. Footing excavations should be observed by a representative of this firm prior to placement of formwork or reinforcement. Concrete should be placed only in foundation excavations that have been kept moist, and contain no loose or soft soil debris.

18. Footings located adjacent to other footings or utility trenches should have their bearing surfaces founded below an imaginary 1:1 (horizontal to vertical) plane projected upward from the bottom edge of the adjacent footings or utility trenches.

Slabs-on-Grade and Exterior Flatwork

19. Slabs-on-grade within the office building areas should have minimum thickness of 6 full inches. It should be noted that the project structural engineer might require thicker slab sections to provide the necessary support for the anticipated structural loads. Exterior slabs-on-grade and flatwork should have minimum thickness of 4 full inches. Exterior flatwork should be reinforced with steel as specified by the architect/structural engineer.
20. The building floor slabs and exterior flatwork should be constructed on moisture conditioned and compacted soil subgrades. Preparation of soil subgrades and compaction of structural fill should be performed as recommended in the section entitled "Site Preparation and Grading".
21. To minimize floor dampness, such as where moisture sensitive floorings will be present, a section of capillary break material at least 4-inches thick covered with a membrane vapor barrier should be placed between the floor slab and the compacted soil subgrade. The capillary break should consist of a clean, free draining material such as ½ to ¾-inch drainrock with not more than 10 percent of the material passing a No. 4 sieve. The drainrock should be free of sharp edges that might damage the membrane vapor barrier. The membrane vapor barrier should be a minimum 10 mil in thickness, and care should be taken to properly lap and seal the vapor barrier, particularly around utilities. To protect the vapor barrier from damage during concrete placement, it should be covered with a minimum of 2 inches of clean sand. Clean sand is defined as a sand (ASTM D 2488-84) of which less than 3 percent passes the No. 200 sieve. The sand cushion should be lightly moistened immediately prior to concrete placement.

22. Exterior concrete flatwork should be designed to act independently of building foundations. To reduce shrinkage cracks in concrete slabs and flatwork, contraction joints can be installed. Joint spacing should be at the direction of the architect/structural engineer.

Retaining Walls

23. Retaining walls for the site may be designed using the following general design parameters, which assume fully drained wall backfill conditions. The average bulk density of material placed on the backfill sides of walls will be about 135 pounds per cubic foot (pcf).
24. The vertical plane extending down from the ground surface to the bottom of the heel of the vertical wall will be subject to lateral soil pressures (plus surcharge loads). An Active Soil Pressure (equivalent fluid weight) may be assumed for level backfill of 35 pcf, and for 2:1 (h:v) sloping backfill of 50 pcf. Active soil pressures may be used in design if the tops of walls are free to move laterally and resultant settlement of backfill is tolerable. Lateral displacement of $\frac{1}{2}$ to 1 percent of the wall height will be necessary to develop active soil pressure. An At-Rest Soil Pressure (equivalent fluid weight) may be assumed for level backfill of 50 pcf and for 2:1 (h:v) sloping backfill of 65 pcf. At-rest soil pressures should be used in design if movement of the top of the wall is restrained or undesirable, or if settlement of the wall is not acceptable. Walls, which are restricted from movement at the top (such as foundation walls), should be designed to resist a uniformly applied wall pressure of $10H$ psf, where H is the height of the wall in feet. The active and at-rest soil pressures recommended above are for non-seismic conditions. For static conditions, we recommend at-rest soil pressure be used in wall design. For seismic conditions, we recommend the walls be evaluated based on active soil pressure plus a seismic surcharge described below (plus other surcharge loads that may pertain).

25. The additional effects of earthquakes on the walls may be simulated by applying a horizontal line force of $10H^2$ pounds per foot length of wall. This force should be applied at a height of $0.6H$ above the wall heel. The additional effects of vertical live loads on the backfill side of walls may be simulated by applying 50 percent of the live loads as a horizontal surcharge force on the walls. The point of application of the live load surcharge may be estimated by assuming a 45-degree line of action down from the live load to the design plane or wall stem.
26. Retaining walls should be supported on foundations extending into competent earth materials. Allowable soil bearing pressure (for dead plus live loads) = 2,500 psf assuming a footing depth of 18-inches below lowest adjacent grade. An increase of $1/3$ is allowed when considering additional short-term wind or seismic loading. The ultimate coefficient of friction below the base of the wall = 0.30. Passive soil resistance against the portion of the wall base and key is 350psf/ft. for level ground in front of the wall. Lateral support from the soil that may be excavated or used in landscaping near the wall footing should be neglected. Typically this would include the top 12-inches of soil around the wall.
27. The lateral active earth pressures are based on drained conditions. We recommend that a zone of drainage material at least 12-inches wide should be placed on the backfill side of the walls. Drainage materials should consist of Class 2 permeable material complying with Section 68 of the Caltrans Standard Specifications, latest edition, or $3/4$ -inch permeable drainrock wrapped in Mirafi 140N or equivalent. The drains should extend from the base of the walls to within 12-inches of the top of the wall backfill. The upper 12-inches of wall backfill should consist of compacted structural fill. A perforated pipe should be placed (holes down) about 4-inches above the bottom of the wall or below lowest adjacent grades in front of the wall. The perforations should be no larger than $1/4$ -inch diameter, and the perforated pipe should be connected via a solid collector pipe to an appropriate discharge facility down-slope of the building. Alternatively, weep holes may be provided at the base of the wall in lieu of the perforated pipe.

28. Wall backfill should be moisture conditioned and compacted to a minimum of 90% of maximum dry density. If heavy compaction equipment will be used for compaction of the wall backfill, the wall design should include a compaction surcharge in addition to the soil pressures given above. Landset Engineers, Inc. should be consulted for proper compaction surcharge pressures. To avoid surcharging the walls, backfill within 3-feet of the wall should be compacted by hand operated equipment.

Utility Trenches

29. On-site soils should be properly shored and braced during construction to prevent sloughing and caving of trench sidewalls. The contractor should comply with the Cal/OSHA and local safety requirements and codes dealing with excavations and trenches.
30. A select non-corrosive, granular, material should be used as bedding and shading immediately around underground utility pipes and conduits. The site native soils may be used for trench backfill above the select material.
31. Trench backfill in landscaped or unimproved areas should be compacted to a minimum of 85 percent of maximum dry density. Trench backfill in the upper 1 foot of subgrade beneath asphalt and concrete pavements should be compacted to a minimum of 95 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density. Jetting of utility trench backfill should not be allowed.
32. The bottoms of utility trenches that are parallel to foundations should not extend below an imaginary plane sloping downward at a 1:1 (horizontal to vertical) angle from the bottom outside edges of foundations.

Site Drainage

33. A drainage & erosion control plan is essential to the project. Fluctuations of moisture contents are a major consideration, both before and after construction. Properly designed drainage & erosion control mitigations are essential to the long-term sustainability of the project.
34. Surface drainage should provide for positive drainage so that runoff is not permitted to pond adjacent to foundations, concrete slabs-on-grade, and pavements. Pervious ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10-feet. If this is not practicable due to the terrain or other site features, swales with improved surfaces should be provided to divert drainage away from improvements. Surface runoff collected in this swale should be controlled and flow in a non-erosive manner to an approved point of discharge.
35. Roof gutters should be utilized around the building eaves. Roof gutters should be connected to downspouts. Runoff from downspouts, planter drains and other improvements should discharge in a non-erosive manner away from site improvements in accordance with the requirements of the governing agencies.
36. The migration of water or spread of root systems below foundations, slabs, or pavements may cause differential movement and subsequent damage. Landscaping runoff collection facilities should be incorporated in the project design.
37. Cut-off drainage swales should be constructed at the top of all cut and fill slopes. These drainage swales should be of adequate size to collect surface runoff and flow to an approved point of discharge in a non-erosive manner. Proper drainage and re-vegetation of graded slopes is essential to ensure stability.

NOTICE TO OWNER & QUALITY CONTROL

The conclusions and recommendations contained in this update report are preliminary in nature. We recommend that Landset Engineers, Inc. be retained to review final plans once they are available. *Any earthwork or foundation construction performed without engineering supervision, direct observation and/or testing by Landset Engineers, Inc., will not be certified as complete and in accordance with the requirements set forth herein.*

Additional recommendations will be provided if necessary based on our review, to interpret this report during construction, and to provide construction testing and observation services. These services are beyond the scope of this soil engineering investigation and are not considered part of the fees as charged by Landset Engineers, Inc., for the report contained herein.

At a minimum the following items must be reviewed, tested, or observed by this firm:

- *Grading, drainage & erosion control plans*
- *Building and foundation plans*
- *Site stripping and clearing*
- *Subexcavation, scarification, fill placement and compaction*
- *Foundation excavations*
- *Surface and subsurface drainage improvements*
- *Compaction of utility trench & retaining wall backfill and pavement areas*

If Landset Engineers, Inc. is not retained to provide construction observation and testing services, it shall not be responsible for the interpretation of the information by others or any consequences arising therefrom.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The preliminary recommendations contained in this report are based, in part, on certain plans, information, and data that has been provided to us. Any changes in those plans, information, and data will render our recommendations invalid unless we are commissioned to review the changes and to make any necessary modifications and/or additions to our recommendations. The criteria in this report are considered preliminary until such time as they are modified or verified by the soil engineer in the field during construction. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client and the client's architect/engineer. Application beyond the stated intent is strictly at the user's risk.

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings. If any variations or undesirable conditions are encountered during construction, Landset Engineers, Inc. should be notified so that supplemental recommendations can be given.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans, and that the necessary steps are taken to ensure that the Contractor and Subcontractors carry out such recommendations. The conclusions and recommendations contained herein are professional opinions derived in accordance with current and local standards of professional practice.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes outside of our control. Therefore, this report should not be relied upon after a period of three years, without being reviewed by Landset Engineers, Inc. from the date of issuance of this report.

This report does not address issues in the domain of the contractor such as, but not limited to, loss of volume due to stripping of the site, shrinkage of fill soils during compaction, excavatability, and construction methods. The scope of our services did not include any determination or evaluation of site geology, soil corrosion potential, environmental assessment of wetlands, radioisotopes, hydrocarbons, hazardous or toxic materials, or other chemical properties in the soil, surface water, groundwater or air, on or below or around the site.

REFERENCES

- Clark, J.C., Dupre, W.R., Rosenberg, L.I., 1997, Geologic map of the Monterey and Seaside quadrangles, Monterey County, California: U.S. Geological Survey Open File Report 97-30, 26 p. 2 plates scale 1:24,000.
- Dupre', W.R., 1990, Maps showing geology and liquefaction susceptibility of Quaternary deposits in the Monterey, Seaside, Spreckels, and Carmel Valley quadrangles, Monterey County, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2096, 2 map sheets, scale 1:24,000.
- Hart, E.W., Bryant, W.A., 1997 (revised 1999), Fault-rupture hazard zones in California: California Division of Mines and Geology Special Publication 42, 38p.

FIGURES

Figure 1, Vicinity Map

Figure 2, Boring Location Map

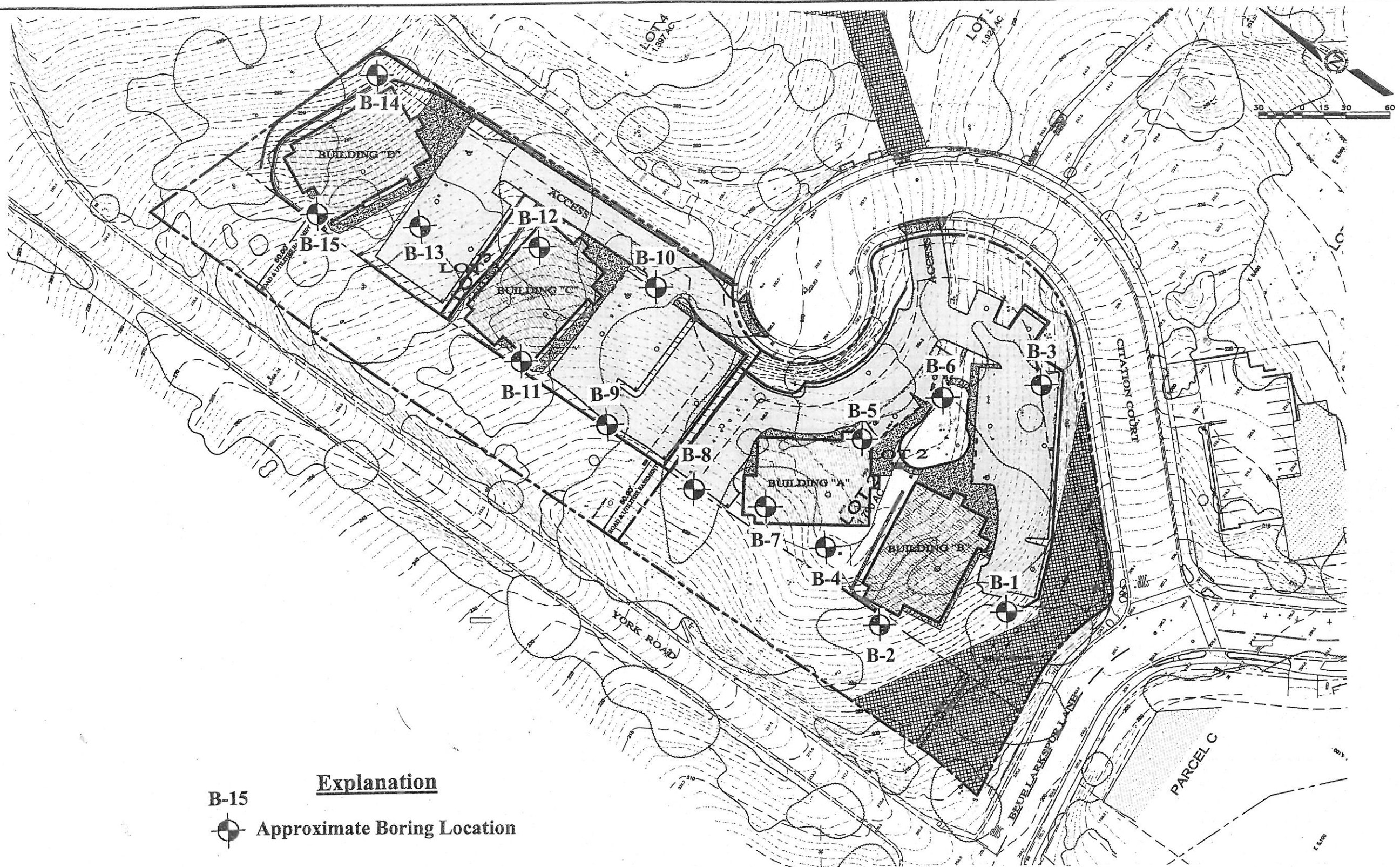


BASE MAP: Seaside, California
 U.S.G.S. 7.5' Topographic
 Quadrangle Map
 Scale: 1"=2000'



Vicinity Map
 Shen Office Complex (APN's 173-121-002 & 003)
 Citation Court
 Monterey County, California

FIGURE
1
PROJECT
1454-02



APPENDIX A

Unified Soil Classification Systems
Key to Log of Borings
Soil Terminology
Exploratory Boring Logs B-1 through B-15

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS		
COARSE GRAINED SOILS More than 50% of material is larger than No. 200 sieve size.	GRAVEL AND GRAVELLY SOILS More than 50% of coarse fraction retained on No. 4 sieve.	CLEAN GRAVELS		GW	Well-graded gravels, gravel-sand mixtures, little or no fines.		
				GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		GRAVELS WITH FINES		GM	Silty gravel, gravel-sand-silt mixtures.		
				GC	Clayey gravels, gravel-sand-clay mixtures.		
	SAND AND SANDY SOILS More than 50% of coarse fraction passing No. 4 sieve.	CLEAN SAND		SW	Well-graded sands, gravelly sands, little or no fines.		
		(Little or no fines)		SP	Poorly-graded sands, gravelly sands, little or no fines.		
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures.		
				SC	Clayey sands, sand-clay mixtures.		
FINE GRAINED SOILS More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity.		
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
				OL	Organic silts and organic silty clay of low plasticity.		
		LIQUID LIMIT GREATER THAN 50		MH	Inorganic silty, micaceous or diatomaceous fine sand or silty soils.		
				CH	Inorganic clays of high plasticity, fat clays.		
				OH	Organic clays or medium to high plasticity, organic silts.		
			HIGHLY ORGANIC SOILS			PT	Peat, humus, swamp soils with high organic contents.
			VARIOUS SOILS AND MAN MADE MATERIALS				Fill materials.
MAN MADE MATERIALS				Asphalt and concrete.			

KEY TO LOG OF BORINGS

Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil-Group	Moisture (% dry weight)	Dry Density (pcf)
1					Shelby Sampler			
2					Thin walled, 3" diameter, 3 ft long, hydraulically advanced.			
3					Modified California Sampler			
4					3" diam. split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30".			
5					Standard Penetration Test (SPT) Sampler			
6					2" diam. split-barrel sampler driven by a 140 lb hammer with a drop of 30".			
7					Bulk Sample			
8					Loose soil removed for testing.			
9					California Sampler			
10					2.5" diam. split-barrel sampler with brass liners driven by a 140 lb hammer with a drop of 30".			
11					Shaded area denotes sample taken.			
12					Hand Sampler (2.5" diam. driven by hand).			
13					Groundwater encountered during drilling			
14					Continuous Core Sampler			
15					94 mm Christianson Sampler.			
16			75		Seepage			
17					Approximate blows per foot.			
18					Solid line denotes soil or lithologic change.			
19					Dashed line denotes gradational or approximate soil or lithologic change.			
20								
21								
22					Heavy line denotes termination of boring.			
23								
24					N/R = No sample recovered			
25					D.S. = Disturbed sample			
26								
27								
LandSet Engineers, Inc.					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landset@aol.com	Figure A2		

SOIL TERMINOLOGY

SOIL TYPES (Ref. 1)

Boulders:	Particles of rock that will not pass a 12 inch screen.
Cobbles:	Particles of rock that will pass a 12 inch screen, but not a 3 inch sieve.
Gravel:	Particles of rock that will pass a 3 inch sieve, but not a No.4 sieve.
Sand:	Particles that will pass a No. 4 sieve, but not a No. 200 sieve.
Silt:	Soil that will pass a No. 200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.
Clay:	Soil that will pass a No. 200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

MOISTURE AND DENSITY

Moisture Condition:	An observational term; dry, slightly moist, moist, very moist, saturated.
Moisture Content:	The weight of water in a sample divided by the weight of dry soil in the soil sample, expressed as a percentage.
Dry Density:	The pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref. 3)

Liquid Limit:	The water content at which a No. 40 soil is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limit:	The water content at which a No. 40 soil is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index:	The difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's. 2 & 3)

Very soft	N=0-1 *	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium Stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very Stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by a pencil point

* N = Blows per foot in the Standard Penetration Test. In cohesive soils, with the 3" diameter sampler, 140 pound weight, divide the blow count by 1.2 to get N (Ref. 4).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS AND SILTS) (Ref's. 2 & 3)

Very Loose	N=0-4 **	RD=0-30	Easily push a 1/2" reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a 1/2" reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a 1/2" reinforcing rod
Dense	N=31-50	RD=70-90	Drive a 1/2" reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a 1/2" reinforcing rod a few inches

** N = Blows per foot in the Standard Penetration Test. In granular soils, with the 3" diameter sampler, 140 pound weight, divide the blow count by 2 to get N (Ref. 4). RD = Relative Density





- Ref. 1: ASTM Designation: D 2487-93, Standard Classification of Soils for Engineering Purposes (Unified Soils Classification System).
- Ref. 2: Terzaghi, Karl, and Peck, Ralph B., Soil Mechanics in Engineering Practice, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, 347.
- Ref. 3: Sowers, George F., Introductory Soil Mechanics and Foundations: Geotechnical Engineering, Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80,81 and 312.
- Ref. 4: Lowe, John III, and Zaccaro, Phillip F., Subsurface Explorations and Sampling Chapter 1 in "Foundation Engineering Handbook," Hsai-Yang Fang, Editor, Van Nostrand Reinhold Company, New York, 2nd Ed., 1991, p. 39.


EXPLORATORY BORING LOG						No.	B-1	
PROJECT: Shen Office Complex			DATE DRILLED: 5/27/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, slightly moist, very fine to fine grained, 40-45% fines	SM		
2					Medium dense, moist			
3	1-1				(Qtc): Continental deposits (Plio-Pleistocene): Yellowish brown silty SAND, very dense, moist, 30-40% fines, occasional clay infilled fractures		13.2	108.8
4	1-2		87/10	4.50			12.3	115.8
5	1-3		88/11				11.1	
6								
7						SM		
8								
9					Color change to very pale orange, very fine, grained 45-50% fines			
10								
11								
12	1-4		64				8.2	
13					TD @ 11.5'			
14					No Groundwater Encountered			
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								

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Figure A-4


EXPLORATORY BORING LOG						No.	B-2	
PROJECT: Shen Office Complex			DATE DRILLED: 5/27/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 14.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine to fine grained, 40-45% fines	SM		
2								
3	2-1		82/9	4.50	(Qtc): Continental deposits (Plio-Pleistocene): Dark yellowish brown silty SAND, very dense, moist, very fine to medium grained, 25-30% fines, trace fine gravel		10.3	111.6
4								
5								
6	2-2		65		20-25% fines	SM	10.4	
7								
8								
9								
10					Color change to grayish brown, 15-25% fines			
11	2-3		67				7.5	
12								
13								
14	2-4		84/10		Common gravels, slightly clayey		14.1	
15					TD @ 14.5'			
16					Drill Rig Refusal			
17					No Groundwater Encountered			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								








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Figure
A-5

EXPLORATORY BORING LOG						No.	B-3	
PROJECT: Shen Office Complex			DATE DRILLED: 5/27/15			FILE No. 1454-02		
DRILLER: California Geotech			DRILLING METHOD: B-24			LOGGED BY: BP		
BORING DIAMETER: 4" SS			BORING DEPTH: 16.5'			GROUNDWATER DEPTH: N/A		
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine to fine grained, 30-40% fines	SM		
2					Moist, medium dense			
3	3-1				(Qtc): Continental deposits (Plio-Pleistocene): Dark yellowish brown		12.0	87.5
3	3-2		85/11	4.50	SANDY lean CLAY, hard, moist, 40-45% well graded sand fraction trace gravel	CL	13.7	78.5
4								
5					Dark yellowish brown silty SAND, very dense moist, well graded, 20-30% fines, trace gravel			
6	3-3		56				4.8	
7								
8								
9								
10						SM		
11	3-4		81/11				7.9	
12								
13								
14					Common gravels, slightly clayey			
15								
16	3-5		77				12.1	
17					TD @ 16.5'			
18					No Groundwater Encountered			
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-6	

EXPLORATORY BORING LOG						No.	B-4		
PROJECT: Shen Office Complex			DATE DRILLED:		5/27/15	FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD:		B-24	LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH:		16.25'	GROUNDWATER DEPTH:			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)	
0									
1					<u>Fill:</u> Yellowish brown silty SAND, loose, moist, very fine to medium grained, 20-30% fines	SM	10.3	95.4	
2	4-1			1.00			8.1	96.6	
3	4-2		10	3.75					
4					<u>Native:</u> Dark brown sandy lean CLAY, stiff, moist, 40-45% well graded sand fraction	CL	14.3	99.6	
5	4-3			3.50			17.9	97.8	
6	4-4		50	4.50					
7			61		<u>(Qtc): Continental deposits (Plio-Pleistocene):</u> Light yellowish brown silty SAND, dense, moist very fine to fine grained, 30-35% fines	SM	10.0		
8	4-5				Very dense				
9					Difficult drilling				
10					35-45% fines, slightly moist				
11									
12	4-6			65				6.0	
13									
14									
15									
16	4-7			97/9				5.8	
17					TD @ 16.25'				
18					No Groundwater Encountered				
19									
20									
21									
22									
23									
24									
25									
26									
27									
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-7		

EXPLORATORY BORING LOG					No.	B-5		
PROJECT: Shen Office Complex			DATE DRILLED: 5/27/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine grained, 35-45% fines			
2					Slightly moist, medium dense			
3	5-1			2.50	(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, moist, common clay infilled fractures at 2.5'-3.5', 35-40% fines		4.5	103.9
4	5-2		53	4.50			18.3	108.5
5					Very fine to medium grained, 35-45% fines, trace fine gravel, very dense			
6								
7	5-3		65				7.3	
8								
9								
10								
11	5-4		78				10.5	
12					TD @ 11.5'			
13					No Groundwater Encountered			
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								



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Figure
A-8

EXPLORATORY BORING LOG					No.	B-6		
PROJECT: Shen Office Complex			DATE DRILLED: 5/27/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 6.5'		GROUNDWATER DEPTH:			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine grained, 30-40% fines	SM	6.1	
2					Medium dense			
3	N/R				(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty			
4	6-1		96/11		SAND, very dense, slightly moist, very fine to fine grained, 25-35% fines	SM		
5								
6	6-2		75		Dark yellowish brown clayey GRAVEL, very dense, moist	GC	13.1	
7					TD @ 6.5'			
8					No Groundwater Encountered			
9								
10								
11								
12								
13								
14								
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26								
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Figure A-9


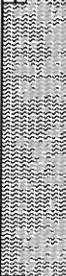


EXPLORATORY BORING LOG						No.	B-7		
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15		FILE No. 1454-02				
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP				
BORING DIAMETER: 4" SS			BORING DEPTH: 16.5'		GROUNDWATER DEPTH: N/A				
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)	
0									
1					Yellowish brown silty SAND, loose, dry, very fine grained, 30-45% fines,	SM			
2					Medium dense				
3	7-1			55	4.50	(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, slightly moist, slightly cemented, 30-40% fines		4.9	101.6
4	7-2			2.75			3.9	105.9	
5									
6	7-3			61	4.50			11.7	112.4
7							SM		
8						Moist, decrease cement			
9						Clayey gravel interbeds			
10									
11	7-4			38				12.6	
12									
13									
14									
15									
16	7-5			55		Very dense, 30-35% fines		9.3	
17					TD @ 16.5'				
18					No Groundwater Encountered				
19									
20									
21									
22									
23									
24									
25									
26									
27									
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907		Figure A-10		
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EXPLORATORY BORING LOG						No.	B-8	
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine grained, 30-40% fines	SM		
2					Medium dense, slightly moist			
3	8-1 8-2		82/11	3.75 4.50	(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, very dense, moist, very fine to fine grained, 25-35% fines difficult drilling		7.7 10.1	108.0 104.5
4								
5								
6	8-3			76		Common gravels, 15-20% clayey fines		15.7
7								
8								
9								
10								
11	8-4			30			15.3	
12					TD @ 11.5'			
13					No Groundwater Encountered			
14								
15								
16								
17								
18								
19								
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21								
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24								
25								
26								
27								



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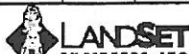
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Figure
A-11

EXPLORATORY BORING LOG						No.	B-9	
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15			FILE No. 1454-02		
DRILLER: California Geotech			DRILLING METHOD: B-24			LOGGED BY: BP		
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'			GROUNDWATER DEPTH:		
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					<u>Qa Alluvium (Holocene)</u> : Brown silty SAND, loose, slightly moist, very fine to medium grained, 30-40% fines	SM		
2	9-1			1.75	Medium dense, moist		5.9	98.5
3	9-2		28	2.00	Brown clayey SAND, medium dense, moist, well graded, 25-30% fines	SC	10.0	107.5
4	9-3		37		<u>(Qtc)</u> : Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, moist, very fine grained, 35-40% fines	SM	10.2	
5								
6								
7								
8								
9								
10								
11	9-4		44				9.9	
12					TD @ 11.5'			
13					No Groundwater Encountered			
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-12	

EXPLORATORY BORING LOG						No.	B-10	
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15			FILE No. 1454-02		
DRILLER: California Geotech			DRILLING METHOD: B-24			LOGGED BY: BP		
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'			GROUNDWATER DEPTH: N/A		
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1	10-1				Yellowish brown silty SAND, loose, dry, very fine grained, 30-40% fines	SM	7.3	88.6
2					Medium dense, moist			
3					10-2			
4					(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, very dense, moist, very fine to fine grained, 25-35% fines	SM	5.4	
5	10-3		83					
6								
7								
8								
9	10-4		65		Occasional gravel		6.7	
10								
11								
12					TD @ 114.5'			
13					No Groundwater Encountered			
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-13	

EXPLORATORY BORING LOG						No.	B-11	
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 11.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine grained, 30-40% fines	SM		
2					Medium dense			
3					Dark brown sandy lean CLAY with orange brown mottles, hard, moist, 10-15% sand fraction	CL		
4	11-1		93/9	4.50	(Qtc): Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, moist, very fine to medium grained 30-40% fines		12.9	110.9
5								
6	11-2		41				10.0	
7								
8					Common gravel			
9								
10								
11	11-3		84/11		Very dense, 15-20% fines		6.4	
12					TD @ 11.5'			
13					No Groundwater Encountered			
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-14	


EXPLORATORY BORING LOG						No.	B-12	
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 16.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1	12-1 12-2		22	2.00 3.50	Qa Alluvium (Holocene): Yellowish brown silty SAND, loose, dry, very fine to medium grained, trace gravel Medium dense	SM	7.2 7.4	133.4 108.3
2								
3								
4								
5	12-3 12-4		61	4.50 4.50	(Qtc) Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, moist, slightly clayey, 30-40% fines	SM	10.9 9.2	108.9 115.8
6								
7								
8								
9	12-5		39		Dark yellowish brown clayey SAND, dense, moist, very fine to medium grained, 25-35% fines	SC	13.2	
10								
11								
12								
13	12-6		63		Light yellowish brown silty SAND, very dense, moist, very fine to fine grained, 30-40% fines	SM	6.1	
14								
15								
16								
17	TD @ 16.5'							
18	No Groundwater Encountered							
19								
20								
21								
22								
23								
24								
25								
26								
27								
						520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-15


EXPLORATORY BORING LOG					No.	B-13		
PROJECT: Shen Office Complex			DATE DRILLED: 5/28/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 6.0'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Brown silty SAND, loose, slightly moist, well graded, 30-35% fines	SM	8.9	100.8
2								
3	13.1		65/8	2.25	Medium dense			
4					(Qtc) Continental deposits (Pli-Pleistocene) Light yellowish brown silty	SM		
5					SAND, very dense, moist, trace gravel			
6	13-2		84/11				4.6	
7					TD @ 6.0'			
8					No Groundwater Encountered			
9								
10								
11								
12								
13								
14								
15								
16								
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Figure A-16

EXPLORATORY BORING LOG						No.	B-14	
PROJECT: Shen Office Complex			DATE DRILLED: 5/29/15		FILE No. 1454-02			
DRILLER: California Geotech			DRILLING METHOD: B-24		LOGGED BY: BP			
BORING DIAMETER: 4" SS			BORING DEPTH: 16.5'		GROUNDWATER DEPTH: N/A			
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish silty SAND with gravel, loose, dry	SM		
2								
3	14-1			4.50	(Qtc) Continental deposits (Plio-Pleistocene) Orange brown clayey SAND with gravel, very dense, moist, well graded, 25-30% fines, 15-20% gravel	SC	10.9	118.5
4	14-2		82	4.50			21.0	92.1
5								
6								
7	14-3		88/11	4.50			13.1	106.6
8					Light yellowish brown silty SAND, very dense, moist, very fine to fine grained, 25-40% fines	SM		
9								
10								
11	14-4		52				6.8	
12								
13								
14								
15					15-20% fines			
16	14-5		81/11				9.4	
17					TD @ 16.5'			
18					No Groundwater Encountered			
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-17	

EXPLORATORY BORING LOG						No.	B-15	
PROJECT: Shen Office Complex			DATE DRILLED: 5/29/15			FILE No. 1454-02		
DRILLER: California Geotech			DRILLING METHOD: B-24			LOGGED BY: BP		
BORING DIAMETER: 4" SS			BORING DEPTH: 16.0'			GROUNDWATER DEPTH: N/A		
Depth (ft)	Sample	Graphic Log	Blows per foot	Pocket Pen (tsf)	Description	U.C.S.C. Soil Group	Moisture (% dry weight)	Dry Density (pcf)
0								
1					Yellowish brown silty SAND, loose, dry, very fine to fine grained, 30-40% fines	SM		
2								
3	15-1			0.50	(Qtc) Continental deposits (Plio-Pleistocene) Light yellowish brown silty SAND, dense, cemented, very fine grained, 40-45% fines	SM	10.6	106.3
4	15-2		32	4.50			7.1	98.3
5	15-3				Dark yellowish brown clayey SAND, medium dense, moist common gravel	SC	16.7	
6	15-4		21		Color change to olive brown, dense		11.9	
7			38					
8								
9								
10								
11	15-5						10.3	
12			36					
13								
14								
15					Light yellowish brown silty SAND, very dense, moist, 10-15% fines	SM		
16	15-6		81/11				5.1	
17					TD @ 16.0'			
18					No Groundwater Encountered			
19								
20								
21								
22								
23								
24								
25								
26								
27								
					520 B Crazy Horse Canyon Rd, Salinas, CA 93907 (831) 443-6970, Fax (831) 443-3801, landseteng.com		Figure A-18	

APPENDIX B

Laboratory Test Results

Table B-1
Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Dry Density (pcf)	Water Content (%)	Pocket Penetrometer (tsf)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200
1-1	2.5-3.0	108.8	13.2	4.50	--	--	--	--
1-2	3.0-3.5	115.8	12.3	4.50	--	--	--	--
1-3	3.5-4.5	--	11.1	--	--	--	--	--
1-4	10.0-11.5	--	8.2	--	--	--	--	48
2-1	2.5-3.0	111.6	10.3	4.50	--	--	--	--
2-2	5.0-6.5	--	10.4	--	--	--	--	24
2-3	10.0-11.5	--	7.5	--	--	--	--	--
2-4	13.5-14.5	--	14.1	--	--	--	--	--
3-1	2.5-3.0	87.5	12.0	--	--	--	--	58
3-2	3.0-3.5	78.5	13.7	4.50	--	--	--	--
3-3	5.0-6.5	--	4.8	--	--	--	--	--
3-4	10.0-11.5	--	7.9	--	--	--	--	--
3-5	15.0-16.5	--	12.1	--	--	--	--	--
4-1	1.5-2.0	95.4	10.3	1.00	--	--	--	--
4-2	2.0-2.5	96.6	8.1	3.75	--	--	--	--
4-3	3.5-4.0	99.6	14.3	3.50	--	--	--	--
4-4	4.0-4.5	97.8	17.9	4.50	--	--	--	--
4-5	5.0-6.5	--	10.0	--	--	--	--	--
4-6	10.0-11.5	--	6.0	--	--	--	--	--
4-7	15.0-16.5	--	5.8	--	--	--	--	--
5-1	2.5-3.0	103.9	4.5	2.50	--	--	--	--
5-2	3.0-3.5	108.5	18.3	4.50	50	14	36	61
5-3	5.0-6.5	--	7.3	--	--	--	--	--
5-4	10.0-11.5	--	10.5	--	--	--	--	--
6-1	2.5-3.5	--	6.1	--	--	--	--	--
6-2	5.0-6.5	--	13.1	--	--	--	--	--
7-1	2.5-3.0	101.6	4.9	4.50	--	--	--	--
7-2	3.0-3.5	105.9	3.9	2.75	--	--	--	--
7-3	5.5-6.0	112.4	11.7	4.50	--	--	--	--
7-4	10.0-11.5	--	12.6	--	--	--	--	--
7-5	15.0-16.5	--	9.3	--	--	--	--	33

Table B-1
Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Dry Density (pcf)	Water Content (%)	Pocket Penetrometer (tsf)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200
8-1	2.0-2.5	108.0	7.7	3.75	--	--	--	--
8-2	2.5-3.0	104.5	10.1	4.50	--	--	--	--
8-3	5.0-6.5	--	15.7	--	--	--	--	19
8-4	10.0-11.5	--	15.3	--	--	--	--	--
9-1	1.5-2.0	98.5	5.9	1.75	--	--	--	--
9-2	2.0-2.5	107.5	10.0	2.00	--	--	--	35
9-3	3.0-4.5	--	10.2	--	--	--	--	--
9-4	10.0-11.5	--	9.9	--	--	--	--	--
10-1	2.5-3.5	88.6	7.3	1.75	--	--	--	--
10-2	3.0-3.5	100.1	15.1	3.50	--	--	--	--
10-3	5.0-6.5	--	5.4	--	--	--	--	--
10-4	10.0-11.5	--	6.7	--	--	--	--	--
11-1	3.0-3.5	110.9	12.9	4.50	43	14	29	45
11-2	5.0-6.5	--	10.0	--	--	--	--	--
11-3	10.0-11.5	--	6.4	--	--	--	--	15
12-1	2.5-3.0	133.4	7.2	2.00	--	--	--	--
12-2	3.0-3.5	108.3	7.4	3.50	--	--	--	--
12-3	5.5-6.0	108.9	10.9	4.50	--	--	--	--
12-4	6.0-6.5	115.8	9.2	4.50	--	--	--	--
12-5	10.0-11.5	--	13.2	--	--	--	--	--
12-6	15.0-16.5	--	6.1	--	--	--	--	--
13-1	2.5-3.0	100.8	8.9	2.25	--	--	--	--
13-2	5.0-6.0	--	4.6	--	--	--	--	--
14-1	2.5-3.0	118.5	10.9	4.50	--	--	--	--
14-2	3.0-3.5	92.1	21.0	4.50	--	--	--	--
14-3	6.0-6.5	106.6	13.1	4.50	--	--	--	--
14-4	10.0-11.5	--	6.8	--	--	--	--	--
14-5	15.0-16.5	--	9.4	--	--	--	--	--

July 29, 2015

File No.: 1454-02

Table B-1
Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Dry Density (pcf)	Water Content (%)	Pocket Penetrometer (tsf)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing #200
15-1	2.5-3.0	106.3	10.6	0.50	--	--	--	--
15-2	3.0-3.5	98.3	7.1	4.50	--	--	--	--
15-3	3.5-5.0	--	16.7	--	--	--	--	--
15-4	5.0-6.5	--	11.9	--	--	--	--	--
15-5	10.0-11.5	--	10.3	--	--	--	--	--
15-6	15.0-16.5	--	5.1	--	--	--	--	--

Summary of Sieve Analysis Test Results, Sample 5-2 (3.0'-3.5')

<u>Sieve No.</u>	<u>% Retained</u>	<u>% Passing</u>
#4	0	100
#8	2	98
#16	4	96
#30	10	90
#50	14	86
#100	25	75
#200	39	61

Summary of Sieve Analysis Test Results, Sample 8-3 (5.0'-6.5')

<u>Sieve No.</u>	<u>% Retained</u>	<u>% Passing</u>
#4	14	86
#8	19	81
#16	26	74
#30	33	67
#50	51	49
#100	67	33
#200	81	19

July 29, 2015

File No.: 1454-02

Summary of Sieve Analysis Test Results, Sample 8-3 (5.0'-6.5')

<u>Sieve No.</u>	<u>% Retained</u>	<u>% Passing</u>
#4	9	91
#8	13	87
#16	18	82
#30	24	76
#50	36	64
#100	56	44
#200	65	35

2012

LIB120260

Regan Biological &
Horticultural consulting
May 18, 2012

Patrick Regan

[BIOLOGICAL ASSESSMENT FOR LOT #5 OF LAGUNA SECA OFFICE PARK]

Updated Biological Assessment for Monterey County Resource management Agency PLN # 20332

RE: McIntosh project APN 173-121-005

Introduction

Mr. Leonard McIntosh of McIntosh Enterprises proposes to construct a 12,739 square foot, 2 story professional office building on Lot #5 APN 173-121-005 of the Laguna Seca office park in Monterey, CA. The lot size is 1.92 acres (83,810 square feet) and the total build out combined with parking and driveway improvements will have a footprint of 40,001 square feet or 47.7 % of the lot. This lot and 5 others around it are zoned for commercial development and have been prepared with infrastructure including road access and utilities' in place since 1985 .Biological assessment of the site was completed in 2002 by Mr. Bruce Cowan. No permits were pulled and no construction occurred at that time and recent queries about entitlement for future development of these lots has resulted in the request to update the Biological assessment to reflect current conditions and specifically to address California department of Fish and Game comments about potential California tiger salamander habitat on the project site.

Project Setting

The undeveloped lots being studied lie at the West end of the Laguna Seca Office park a 54 acre medical and professional office development in Monterey California. The office park is bounded by Blue Larkspur lane, a frontage road along Highway 68 to the South, York road and Ryan Ranch business park on the West, York School and York road to the north and additional professional buildings in the Laguna Seca Office park to the East. The project site is one quarter mile north of highway 68 and about a quarter



Figure 1: View of Lot #5 looking north toward York school campus.

mile south of South Boundary road on the former Fort Ord. The location is centrally located within the USGS Seaside quad approximately halfway between Monterey and Salinas.

Methods

Literature & Database review

Previous to visiting the site, I queried the California natural diversity database for special status (Considered rare, threatened or endangered by one or more local, state or Federal agencies or special interest groups like the California native plant society)) species that have been documented within the Seaside quad of the USGS. The query returned a list of 13 species of animals, including three insects, 23 plant species and three unique plant communities. The plants on the list include: Eastwood's golden fleece (*Ericameria fasciculata*), Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Contra Costa goldfields (*Lasthenia conjugens*), Carmel Valley Malacothrix (*Malacothrix saxatilis* var. *arachnoidea*), Santa Cruz microseris (*Stebbinsoseris decipiens*), Marsh microseris (*Microseris paludosa*), Sand loving wallflower (*Erysimum ammophilum*), Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*), Toro manzanita (*Arctostaphylos montereyensis*), Pajaro manzanita (*Arctostaphylos pajaroensis*), sandmat manzanita (*Arctostaphylos pumila*), Pacific Grove clover (*Trifolium polyodon*), Santa Cruz clover (*Trifolium buckwestiorum*), Carmel Valley bush mallow (*Malacothamnus palmeri* var. *involucratus*), Jolon clarkia (*Clarkia jolonensis*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*), sand gilia (*Gilia tenuiflora* ssp. *arenaria*), Hospital canyon larkspur (*Delphinium californicum* ssp. *interius*), Kellogg's horkelia (*Horkelia cuneata* var. *sericea*), Seaside bird's beak (*Cordylanthus rigidus* ssp. *littoralis*), Pinnacles buckwheat (*Eriogonum nortonii*), seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*), Monterey pine (*Pinus radiata*), Hickman's onion (*Allium hickmanii*) and Yadon's rein orchid (*Piperia yadonii*). Animal species are California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), Western snowy plover (*Charadrius alexandrinus nivosus*), burrowing owl (*Athene cunicularia*), tri-colored blackbird (*Agelaius tricolor*), steelhead - south/central California coast DPS (*Oncorhynchus mykiss irideus*), Salinas harvest mouse (*Reithrodontomys megalotis distichli*), American badger (*Taxidea taxus*), Western pond turtle (*Emys marmorata*), Black legless lizard (*Anniella pulchra nigra*), California fairy shrimp (*Linderiella occidentalis*), globose sand beetle (*Coelus globosus*), Smith's blue butterfly (*Euphilotes enoptes smithi*) and monarch butterfly (*Danaus plexippus*). Plant communities include Central maritime chaparral, Valley needlegrass grassland and Monterey pine forest. The bulk of these particular plant and animal species are typically found in one or more of these special status plant communities. Inclusion on this list is no guarantee of presence on the project site, but it does help in preparation for site surveys to know what to expect. In the same way, species that are not found on the list but have potential to occur in this region or habitat type are not excluded from potential occurrence. A spread sheet with all of the above mentioned species and indications of whether suitable habitat exists on site and whether or not the particular element (plant, animal or plant community) was observed on or adjacent to the site is included as an appendix of this report.

Potential Occurrence of Special Status species

Survey On Tuesday May 15, I visited the proposed project site. I surveyed the entire property for special status plant and animal species as well as plant communities by walking around the entire perimeter of the 6 remaining undeveloped lots and then back and forth on transects through the middle of the site. This survey date was appropriately timed to observe the vast majority of species in bloom and insure accurate identification of all potential occurring and encountered species. While the focus of this report is on lot #5 of the Business park, the assessment for possible presence of special status species, by necessity must include nearby and adjacent property and it is anticipated that future development of Lots numbered 2,3,4,6 and 7 will require similar documentation. One of the above mentioned special status species was observed during my survey. Hookers manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) was observed growing on an east facing slope in an easement area overlooking a neighboring office building beyond the eastern edge of lot # 7. While some suitable habitat occurred for other species, no special status animal species were observed and no other special status plant species were observed.

Results

Habitat types



Figure 2: Aerial view of undeveloped lots in Laguna Seca office park. Lot #5 is in center above white roadway and right of curve to cul-de-sac.

The proposed project site has a long history of human disturbance from past Ranching activity to relatively recent development preparation. It is currently managed for fire safety with brush and grass mowing at least one time a year. The overall site contains a patch work of 4 plant communities: mixed nonnative grasslands with some patches of *Nassella pulchra* and *Nassella lepida* in open flat and gently sloping areas, Coast live oak woodland throughout and small patches of Coastal sage scrub dominated by California sagebrush on South facing slopes. Outside the far south-east limits of the property on a steep east facing slope is a remnant of Central maritime chaparral supporting a few *Arctostaphylos tomentosa* and one *Arctostaphylos hookeri* ssp. *hookeri*. This area will not be impacted by any part of this project. One additional fragment of maritime chaparral occurs between a group of large oak trees just west of Lot #5 along the north edge of the sidewalk as it curves along the northern terminus of Citation Court. This is a group of 3 mature *Arctostaphylos tomentosa* plants that are also sheltering a medium sized stick nest of the Monterey Dusky footed wood rat (*Neotoma macrotis luciana*). It should be noted also that the project site has no ponds or pool areas and no other bodies of water. An intermittent creek paralleling Highway 68 runs in a steep sided channel and pipes east to west approximately 1/4 mile south of the project site. it flows into a retention pond approximately 1/2 mile west of the business park next to a parking lot in the neighboring Ryan Ranch business park. This pond has dense weed and wetland species growing around it's perimeter and a large population of mosquito fish (*Gambusia* sp.) occupying the 2-4 foot deep water.

Mixed nonnative grassland throughout the project site is dominated by introduced annual and perennial grasses and forbs from Europe and Africa. Dominant species are Rattlesnake grass (*Briza maxima*), Wild oat (*Avena fatua*), Soft chess (*Bromus hordeaceus*) Barnyard foxtail (*Hordeum murinum*), windmill pink (*Silene gallica*), long-beaked fillaree (*Erodium botrys*) and cheese weed (*Malva parviflora*)



Figure 3: combination of nonnative and native grasses on site.

This is grassland typical of a large area of Coastal California. It does still support a number of native annual and perennial wildflowers like Farewell to Spring (*Clarkia* species), Blue dicks (*Dichelostemma capitatum*), Pretty faces (*Triteleia ixioides*), mariposa lily (*Calochortus luteus*) and Blue-eyed grass (*Sisyrinchium bellum*), but they tend to be few and far between. Perennial grasses included small patches of purple and foothill needle grasses (*Nassella pulchra* and *Nassella lepida*), Blue wild rye (*Elymus glaucus*) and California brome (*Bromus carinatus*). This photo

above, from the east side of the project site, shows a small patch of purple needle grass (*Nassella pulchra*) and a single yellow mariposa lily (*Calochortus luteus*) growing in the midst of a continuous stand of wild oats (*Avena fatua*) and soft chess (*Bromus hordeaceus*). In other areas where the soils are deeper, the annual grasses are more dense and accompanied by weedy, nonnative mustard family species, Thistles and French broom (*Genista monspessulana*)



Figure 4: Middle of lot #5 dominated by nonnative grasses and forbs.

Near the southern boundary of Lot #5 and even more so on Lot #7 are broad patches of Hottentot fig ("Ice plant") spreading out in open areas as well as on top of spoils piles remaining from previous grading efforts. In the spoils piles adjacent to the road, the Hottentot fig is stabilizing and concealing tunnels of California ground squirrels that were active in the area during my survey. California ground squirrels favor such mounded and sloped disturbed soils where tunnels are easy to excavate and seed and foliage forage is abundant nearby. The ground squirrel is not a special status species but is ecologically intertwined with a number of special status predatory species and amphibians that frequently "share" their burrows while passing the dry summer months waiting for the return of rain.



Figure 5 - Ground squirrel burrow in "ice plant"

There was ground squirrel activity and burrowing at the bottom of Lot #7 directly adjacent to utilities boxes and the existing office building at the bottom of Citation court. The photo at the bottom left of the previous page shows the entrance to a ground squirrel burrow on the south side one of the mentioned Hottentot fig patches. Some burrowing tailings and older tunnels were observed in the SW corner of Lot #5 but no squirrels were heard or observed.



Figure 7: View of live oak woodland looking west through lot #5.

oak (*Toxicodendron diversilobum*), red berry (*Rhamnus crocea*), California coffee berry (*Frangula californica*), Coyote brush (*Baccharis pilularis* ssp. *consanguinea*), sticky monkeyflower (*Mimulus aurantiacus* ssp. *aurantiacus*), Fiesta flower (*Pholistoma auritum*) and wild cucumber (*Marah fabaceus* var. *fabaceus*). These natives are mixed with and invaded by a full suite of nonnative grasses and forbs like wild oats, ripgut Brome and Italian thistle. This is also the plant community that will be most highly impacted by the project as 43 oak trees of various sizes are proposed for removal. One animal species that was obviously occupying a few locations in the Oak woodland was the dusky footed wood rat whose

Figure 6 dusky footed wood rat nest.



Coast Live oak woodland is the foundation plant community of the entire site. 65 Oak trees of various age and size are found throughout lot #5, on west and south facing slopes and the deeper soils of lower flats in the middle of the property. It is dense in the middle of the proposed development area and more widely dispersed throughout the remainder of the survey area with open space between trees in more of an Oak savannah. Typical companion species are found in the understory including Poison

nest piles could be found in a few locations at the base of Oak trees on lot # 2 and 3 along York road. (see figure 6 at left) There were no dusky footed wood rat nests located on lot #5. The dusky footed wood rat (*Neotoma macrotis*) is a widely distributed species common through much of Central and Southern California south into Baja Mexico. The local subspecies, Monterey dusky-footed wood rat (*Neotoma macrotis luciana*) is a California department of Fish and Game species of special concern and must be considered in CEQA

review and protected by avoidance or other mitigation measures in the project design.

Coastal Sage Scrub

In areas near the high point of the property and sporadically along south facing slopes are patches of Coastal sage scrub with typical components Coast sage brush (*Artemisia californica*), Sticky monkeyflower (*Mimulus aurantiacus* ssp. *aurantiacus*), Black sage (*Salvia mellifera*) and Coyote bush. These patches are invaded on all sides by nonnative grasses and other invasive weeds like Poison hemlock (*Conium maculatum*), wild oats, Italian and Canada thistle. This plant community will be the least impacted by the office building project.

Figure 8 - Coastal sage scrub plants in upper portion of Lot#5

Special status species

Aside from the particular plant communities, the lone Hookers manzanita off the eastern edge and the few dusky footed wood rat nests, no special status plants or animals were observed on lot #5 in particular or any of the surrounding lots. The property has characteristics that could make it suitable for burrowing owls, American badgers and California tiger salamanders. Evidence of



California ground squirrel activity in the lower western portion of lot #5 and squirrels observed in the SW corner of Lot #7 suggest potential prey possibilities for the Owl and Badger. No evidence was found of burrowing Owl or badger activity and it is likely that the frequent human activity and nearby development would discourage both of these shy species from utilizing the site. Roads, buildings and multiple fence barriers would keep the badger from casually wandering on site from nearby open space on the former Fort Ord where they have been documented. I suspect the same factors would limit the likelihood of the California tiger salamander from utilizing the project site for upland aestivation habitat, but documented breeding ponds within 3 miles mandate a more thorough evaluation in a preliminary habitat assessment that will be an appendix to this report.

Impacts

1.The construction of the 12,739 square foot professional office building on lot #5 will directly impact Oak woodland habitat on the property through the permanent removal of approximately .9 acres of habitat including 43 individual oak trees and one Monterey Pine tree. This is considered a significant impact

Title 16, Chapter 16.60, Monterey County Code, provides for the preservation of oaks and other protected tree species within the unincorporated areas of the County. As defined in Section 16.60.030

D, no oak may be removed in any area of the County designated in the area plan as Resource Conservation, Residential, Commercial or Industrial without a permit. As defined in Chapter 16.60.040 C, removal of more than three protected trees on a lot in a one-year period requires a Forest Management Plan (FMP) and approval of a Use Permit by the Monterey County Planning Commission. The FMP must be prepared by a qualified forester selected from the County's list of consultants. Chapter 16.060.040 D requires that the applicant relocate or replace each removed tree on a one-to-one ratio. This ratio may be varied upon showing that such a requirement will create a special hardship in the use of the site or such a replacement would be detrimental to the long-term health and maintenance of the remaining habitat.

Oak Woodland Management Act

Senate Bill 1334 enacted a CEQA provision, California Public Resources Code (PRC) Section 21083.4, which was effective January 1, 2005, that requires counties acting as lead agencies to consider the possible impacts of oak woodland conversion as part of the CEQA review for all projects. According to PRC 21083.4, if the County determines that there may be a significant impact on oak woodlands, the County must require one or more of the following oak woodlands mitigation alternatives:

1. Conserve oak woodlands, through the use of conservation easements.
2. (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
(B) The requirement to maintain trees pursuant to this paragraph terminates seven years after the trees are planted.
(C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.
(D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.
3. Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements, as specified under paragraph (1) of subdivision (d) of that section and the guidelines and criteria of the Wildlife Conservation Board. A project applicant that contributes funds under this paragraph shall not receive a grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project.
4. Other mitigation measures developed by the County

2. Bird nesting. The removal of 43 trees from the project site has the potential to impact breeding, nesting or fledging activity of native bird species that may occupy or migrate to the site. Tree removal between February 15 and August 30 could significantly impact such activities.

3. Bat roosts/nests. Older oak trees with bark fissures or cavities from broken or diseased limbs are known to be attractive roosting and nesting sites for a number of local bat species. The removal of 34 trees from the project site has the potential to impact roosting, breeding or nesting activity of native bat species that may utilize the trees on site. Tree removal between April 1 and September 30 could significantly impact breeding and nesting activities.

4. Dusky footed wood rat nesting. No wood rat nests were noted on lot #5 during my survey. Future development of other lots will have the potential to impact wood rat nests.

5. The replacement of .9 acres of grassland and woodland habitat with impervious surfaces of building roof tops, parking and driveways has the potential to create short term erosion control issues and increase the amount of storm water runoff from the property.

No other special status species of Plants or animals were observed on the property. No additional impacts are anticipated.

Recommended mitigation

1. Oak tree impacts. To mitigate for the removal of 43 *Quercus agrifolia*, applicant shall develop a Forest management plan which will include the replanting of no less than 43 *Quercus agrifolia* on lot #5 or other adjacent lot in the business park as practicable; or contribution to the Oak woodlands conservation fund. A Forest management plan prepared for this project by Roy Webster of Webster & Associated professional foresters concludes that the remaining open space on Lot #5 would only be able to support 10 new replacement oaks to maturity. Suitable mitigation for the loss of 33 additional trees will need to be located off site or with the Oak woodlands conservation fund.

2. Bird nesting. If any large scale earth moving and grading, tree removal or large scale pruning is to take place between February 15th and August 30 a preconstruction survey for nesting birds shall be required. The survey will be conducted by a qualified Biologist no more than 48 hours prior to commencement of tree trimming or removal process. If nesting activity is noted in any tree slated for removal or within 100 feet of any tree slated for removal, all activities around that tree and within a 100 foot radius shall be suspended until nesting activity has ceased and the young have fledged and dispersed from the nest area. This is to be determined only by a qualified biologist.

3. Bat roosts - Oak trees slated for removal have the potential to provide roosting or nesting habitat for a number of local native species of Bats. A qualified biologist shall conduct a pre-construction/tree removal survey for bats at those areas which will be impacted by construction or specific tree removal. Bats should be determined to be absent or flushed from roost locations prior to cutting and removal of oaks. If flushing of bats from the oaks is necessary, it shall be done by the biologist during the non-breeding season from October 1 to March 31. When flushing bats, portions of bark or limbs shall be moved carefully to avoid harming individuals, and torpid bats given time to completely arouse and fly away. During the maternity season from April 1 to September 30, prior to tree removal a qualified biologist shall determine if a bat nursery is present at any sites identified as potentially housing bats. If an active nursery is present, disturbance of bats shall be avoided until the biologist determines that breeding is complete and young are reared.

4. Erosion control and storm water runoff. Grading plans should provide BMP's for construction period erosion control including restrictions on grading during the rainy season and physical erosion control measures.

With recommended mitigation measures, the impacts from the tree removal and construction of the office building can be reduced to less than significant.

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Appendices:

Observed Plant Species list

Scientific name	Common name
<i>Acacia dealbata</i> *	silver wattle
<i>Achillea millefolium</i>	common yarrow
<i>Acmispon glaber</i>	Deer weed
<i>Anagalis arvensis</i> *	Scarlet pimpernel
<i>Amsinckia menziesii</i>	common fiddleneck
<i>Anaphilis margaritacea</i>	pearly everlasting
<i>Arctostaphylos tomentosa</i>	shaggy bark manzanita
<i>Artemisia californica</i>	California sagebrush
<i>Avena fatua</i> *	wild oat
<i>Baccharis pilularis</i> ssp <i>consanguinea</i>	Coyote brush
<i>Briza maxima</i> *	Rattlesnake grass
<i>Bromus carinatus</i>	California brome
<i>Bromus diandrus</i> *	Rip-gut grass
<i>Bromus hordeaceus</i> *	soft chess
<i>Calochortus luteus</i>	yellow mariposa lily
<i>Carduus pycnocephalus</i> *	Italian thistle
<i>Carpobrotus edulis</i> *	ice plant
<i>Castilleja exserta</i>	Owls clover
<i>Chlorogalum pomeridianum</i>	soap lily
<i>Clarkia purpurea</i>	wine cup clarkia
<i>Cirsium arvense</i> *	Canada thistle
<i>Cirsium vulgare</i> *	Bull thistle
<i>Clarkia rubicunda</i>	ruby chalice clarkia
<i>Conium maculatum</i> *	poison hemlock
<i>Cortaderia jubata</i> *	pampas grass
<i>Dichelostemma capitatum</i>	blue dicks
<i>Distichlis spicata</i>	salt grass
<i>Elymus glaucus</i>	blue wild rye
<i>Erodium botrys</i> *	long-beaked fillaree
<i>Erodium cicutarium</i> *	red-stemmed fillaree
<i>Frangula californica</i>	California coffee berry
<i>Galium aparine</i> *	bedstraw
<i>Genista monspessulana</i> *	French broom
<i>Heterotheca grandiflora</i>	telegraph weed
<i>Hirschfeldia incana</i> *	summer mustard
<i>Hordeum murinum</i> *	barnyard foxtail
<i>Lupinus nanus</i>	sky lupine
<i>Malva parviflora</i> *	cheese weed

Marah fabaceus var. fabaceus	Coast manroot
Medicago polymorpha*	bur clover
Melilotis officinalis*	Yellow sweet clover
Mimulus aurantiacus ssp. aurantiacus	Sticky monkeyflower
Nassella lepida	foothill needle grass
Nassella pulchra	purple needlegrass
Oxalis pes-caprae*	Bermuda buttercup
Pholistoma auritum	fiesta flower
Pinus radiata	Monterey Pine
Quercus agrifolia	Coast live oak
Rhamnus crocea	red berry
Rumex acetosella	Sheep sorrel
Rumex pulcher*	fiddle dock
Salvia mellifera	Black sage
Sanicula crassicaulis	pacific sanicle
Silene gallica*	windmill pink
Silybum marianum*	milk thistle
Sisyrinchium bellum	Blue eyed grass
Sonchus asper*	prickly sow thistle
Toxicodendron diversilobum	Poison oak
Trifolium hirtum*	rose clover
Triteleia ixioides	pretty faces
Vicia sativa*	spring vetch
Vulpia myuros*	rat-tail fescue
Zigadenus fremontii	Fremont's star lily

* non-native

CNNDDB occurrence reports for Seaside Quad: 1.Plant species, 2. Plant communities, 3. Animal Species

CNDDDB special status species and plant community list and occurrence observations on project site.

CNDDDB mapped occurrences in Seaside quad in overlay for USGS Seaside quad.

USFWS California Tiger Salamander Habitat assessment

2012

Regan Biological &
Horticultural Consulting

Patrick Regan

[HABITAT ASSESSMENT FOR CALIFORNIA TIGER SALAMANDER]

June 2012 CTS Habitat Assessment of western end of Laguna Seca Office park for McIntosh Enterprises

CTS habitat assessment for Lots #2-7 of Laguna Seca Office park, Monterey CA.

Introduction

Mr. Leonard McIntosh of McIntosh Enterprises proposes to construct a 12,739 square foot, 2 story professional office building on Lot #5 APN 173-121-005 of the Laguna Seca office park in Monterey, CA. Lot #5 is a 1.92 acre (88,910 square feet) parcel. The entire project will cover approximately .9 acre or 47% of the lot. This lot and 5 others around it are zoned for commercial development and have been prepared with infrastructure including road access and utilities' in place since 1985 after the entire Laguna Seca Office park project was approved and EIR certified in 1983. Biological assessment of this particular site was previously completed in 2002 by Mr. Bruce Cowan. No permits were pulled and no construction occurred at that time and recent queries about entitlement for future development of these lots has resulted in the request to update the Biological assessment to reflect current conditions and specifically to address California department of Fish and Game comments about potential California tiger salamander habitat on the project site.

Project Setting

The undeveloped lots being studied lie at the West end of the Laguna Seca office park, a 58 acre medical and professional office development just east of Monterey City limits in Monterey County, California. The office park is accessed by Blue Larkspur lane, a frontage road paralleling the north side of Highway 68. Surrounding roads and development include York road and Ryan Ranch Office park on the West, York School and York road to the north and additional professional buildings in the Laguna Seca Office park to the East. The project site is one quarter mile north of highway 68 and about a quarter mile south of South Boundary road on the former Fort Ord. The location is centrally located within the USGS Seaside quad approximately halfway between Monterey and Salinas. The topography is gently sloped from a low point on the south boundary of 245 feet to a high point on the north boundary of about 290 foot elevation.

Element 1. Is the project site within the range of the CTS?

The Laguna Seca Office park lies within known range of California Tiger Salamanders. It is not within federal established critical habitat for CTS. It is approximately 1.5 miles north of Critical habitat unit # for the California red legged frog.

Element 2. What are the known localities of CTS within the project site and within 3.1 miles (5.0 kilometers) (km) of the project boundaries?

California tiger salamanders have been documented in the California Natural diversity database within 3.1 miles of the project site on the Former Fort Ord (1992), the Laguna Seca raceway (2006) and the Tehama golf course (2006) to the south. Details of those CNDDB occurrences are included with this report.

Element 3. What are the habitats within the project site and within 1.24 miles (2 km) of the project boundaries? This distance is based on the observed mobility of the species.

The proposed project site contains a patch-work of 4 general plant communities: **mixed nonnative grasslands** with some patches of *Nassella pulchra* and *Nassella lepida* in open flat and gently sloping areas, **Coast live oak woodland** throughout and small patches of **Coastal sage scrub** dominated by California sagebrush on South facing slopes. On the far south-east limits of the property on a steep east facing slope is a remnant of **Central maritime chaparral** supporting a few *Arctostaphylos tomentosa* and one *Arctostaphylos hookeri* ssp. *hookeri*. This area will not be impacted by any part of this project. One additional fragment of maritime chaparral occurs between a group of large oak trees just west of Lot #5 along the north edge of the sidewalk as it curves along the northern terminus of Citation Court. This is a group of 3 mature *Arctostaphylos tomentosa* plants that are also sheltering a medium sized stick nest of the Monterey Dusky footed wood rat. Large swaths of central maritime chaparral occur on the Former Fort Ord to the north of York Road and York school.

Aquatic habitats

There are no aquatic habitats on the project site. It is entirely upland. The closest aquatic habitat is a low flow Canyon del Rey creek drainage approximately 900 feet south of the project site.

Canyon del Rey creek an intermittent creek paralleling and approximately halfway between highway 68 and Blue Larkspur lane runs in a steep sided channel and pipes east to west. It flows under York road and into a retention pond approximately 1/4 mile west of the Office park next to a parking lot in the neighboring Ryan Ranch Office park. This photo below is of the "channel" from the overpass on York road. It is a steeply incised 10 foot drop from the siding of the overpass to the bottom of the channel.



This is the only location along the channel from York road to the Eastern end of the Laguna Seca Office park where the channel bottom is open to daylight. After the channel passes under York road it continues approximately 200 feet NW through dense cover of Willow, Acacia and Eucalyptus trees to the retention pond on the Ryan Ranch property. The retention pond has dense weed and wetland species growing around it's perimeter and a large population of mosquito

fish (*Gambusia* sp.) occupying the 2-4 foot deep water. I did not hear or see any frog species whether tree frog, bull frog or Redlegged frog while I was there in the morning of June 6. This would be potential habitat best suited for bull frogs that require permanent bodies of water to allow two years of development from larvae into adults. Tree frogs and red-legged frogs could both conceivably occupy this pond as well but their smaller



larvae would be easy prey for the abundant mosquito fish. The pond has steep sloped sides densely vegetated with French broom (*Genista monspessulana*), Poison hemlock (*Conium maculatum*), Milk thistle (*Silybum marianum*), Pampas grass (*Cortaderia jubata*) and California blackberry (*Rubus ursinus*)

Additional aquatic habitats occur to the north on the former Fort Ord. Pools with documented adult or larval CTS are located in depressions surrounded by grassland and Maritime chaparral at points 1.6 and 2 miles to the NE from the project site. Other sites that appear to be similar pools or depressions that would fill with water during the rainy season appear in the aerial photograph of the vicinity to be within 1.3 to .8 miles away to the north. Ideal upland aestivation habitat surrounds all of these pools, so it is likely that the vast majority of CTS that reach juvenile stage in any of these potential breeding areas would disperse within a short distance of the pools. Typically, only extreme population increase pressure would cause wider dispersal of juveniles away from their natal pond. In this instance it would require a CTS travel overland away from intact habitat, over two roadways, through a housing development and 20 acre High school campus to locate aestivation habitat in the Laguna Seca Office park.

Mixed nonnative grassland in the middle of the project site and throughout the other 5 undeveloped lots is dominated by introduced annual and perennial grasses and forbs from Europe and Africa. Dominant species are Rattlesnake grass (*Briza maxima*), Wild oat (*Avena fatua*), Soft chess (*Bromus hordeaceus*), rip-gut grass (*Bromus diandrus*) Barnyard foxtail (*Hordeum murinum*), windmill pink (*Silene gallica*), long-beaked fillaree (*Erodium botrys*) and cheese weed (*Malva parviflora*) This is grassland typical of a large area of Coastal California. It does still support a number of native annual and perennial wildflowers like Farewell to Spring (*Clarkia* species), Blue dicks (*Dichelostemma capitatum*), Pretty faces (*Triteleia ixioides*), mariposa lily (*Calochortus luteus*) and Blue-eyed grass (*Sisyrinchium bellum*), but they

tend to be few and far between , primarily on the higher eastern and northern slopes of the project area. Perennial grasses included small patches of purple and foothill needle grasses (*Nassella pulchra* and *Nassella lepida*), Blue wild rye (*Elymus glaucus*) and California brome (*Bromus carinatus*). Shallow soils in the upper northern and east sides of the project site, host small patches of purple needle grass (*Nassella pulchra*) amongst almost continuous stands of wild oats (*Avena fatua*) and soft chess (*Bromus hordeaceus*). In other areas where the soils are deeper, the annual grasses are more dense and accompanied by weedy, nonnative mustard family species, Thistles and French broom (*Genista monspessulana*)

Near the southern boundary of Lot #5 and even more so on Lot #7 are broad patches of Hottentot fig ("Ice plant") spreading out in open areas as well as on top of spoils piles remaining from previous grading efforts. In the spoils piles adjacent to the road, the Hottentot fig is stabilizing and concealing tunnels of California ground squirrels that were active in the area during my survey. California ground squirrels favor such mounded and sloped disturbed soils where tunnels are easy to excavate and seed and foliage forage is abundant nearby. The ground squirrel is not a special status species but is ecologically intertwined with a number of special status predatory species and amphibians that frequently "share" their burrows while passing the dry summer months waiting for the return of rain. There was ground squirrel activity and burrowing at the bottom of Lot #7 directly adjacent to utilities boxes and the existing office building at the bottom of Citation court. Some burrowing tailings and older tunnels were observed in the SW corner of Lot #5 but no squirrels were heard or observed. In close proximity, (within 500 feet) with an unobstructed path to a suitable breeding site this would be considered good upland aestivation habitat.

Coast Live oak woodland is the foundation plant community of the entire site. Sixty-five (65) Oak trees of various age and size are found throughout lot #5, on slopes, ridge tops, and the deeper soils of lower flats in the middle of the property. It is dense in the middle of the proposed development area and more widely dispersed throughout the remainder of the survey area with open space between trees in more of an Oak savannah. Typical companion species are found in the understory including Poison oak (*Toxicodendron diversilobum*), red berry (*Rhamnus crocea*), California coffee berry (*Frangula californica*), Coyote brush (*Baccharis pilularis* ssp *consanguinea*), sticky monkeyflower (*Mimulus aurantiacus* ssp. *aurantiacus*), Fiesta flower (*Pholistoma auritum*) and wild cucumber (*Marah fabaceus* var. *fabaceus*) . These natives are mixed with and invaded by a full suite of nonnative grasses and forbs like wild oats, ripgut Brome and Italian thistle. In disturbed openings between some of the larger oak trees on the west side of lot #5 tunnel openings of California ground squirrel burrows are obvious. No ground squirrels were seen in this area, but squirrels were seen and heard down slope in spoils piles on lot #7.

In areas near the high point of the property and sporadically along south facing slopes are patches of **Coastal sage scrub** with typical components Coast sage brush (*Artemisia californica*), Sticky monkeyflower (*Mimulus aurantiacus* ssp. *aurantiacus*), Black sage (*Salvia mellifera*) and Coyote bush. These patches are invaded on all sides by nonnative grasses and other invasive weeds like Poison hemlock (*Conium maculatum*), wild oats, Italian and Canada thistle. Where the plant community is reasonably intact it is rather dense; where soil conditions change and it is being invaded by nonnative

grasses and forbs the transition is stark as in the photo at upper right on the following page. This view is in the upper NE corner of lot #5 near the property line with York School property. The orange flowers in the bottom of the photo are from the Sticky monkey flower.

Additional Coast live oak woodland and Coastal sage scrub occupies the north facing steep slopes and mesa's of the land south of Highway 68 in the Sierra de Salinas. Two CTS breeding ponds were documented in 1996 in the Tehama development approximately 1.6 miles SW of the project site. In 2006 an additional survey record indicates that both of these ponds are now within the Tehama golf course and only 1 adult and no larvae were found at the time.



All of the project site habitat is fragmented and divided from larger contiguous habitat by primary and secondary transportation routes in the local area. Additional development in every direction from the proposed construction site further fragments the habitat and potential migratory corridors to and from the larger habitat patches and potential breeding areas. Actual physical barriers include the cut of roadway banks requiring steep climbs or long detours on paved roads, steep incised banks of the Canyon del Rey creek channel, roadside sidewalks and fences along the boundary of the former Fort Ord. The retention pond on the Ryan Ranch property to the west is the closest water body to the project site. It would potentially offer a water source for a variety of Mammals and birds in the area and potential habitat for Western pond turtles, but is low quality habitat for California Tiger Salamanders.

The following pages contain photographs of the project site and surrounding area.



Figure 1: view up Citation court toward project site from Blue Larkspur lane.

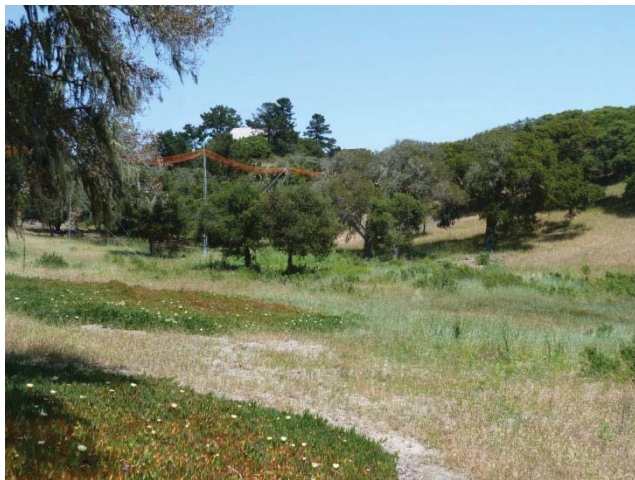


Figure 2: View of proposed construction area from SW corner of lot #5



Figure 3: View of Lot #5 project site from Citation Court. Buildings of York High school in background.



Figure 4: View looking south down to Blue Larkspur lane from Lot #5



Figure 5: view looking east across lot #7 from Citation court. Active Ground Squirrel burrows are present in the *Carpobrotus* in foreground.



Figure 6: View of York High school buildings from East of lot #5



Figure 7: View looking south through proposed construction area on lot #5.



Figure 8; view north through lower end of lot #5 from lot #7.



Figure 9: view from east looking across Lot #5 toward Ryan ranch Office park.



Figure 10; view looking SE through nonnative grassland of lot #5.



Figure 11: Annual grassland in lower west section of lot #5 with rodent burrows in foreground.



Figure 12: view looking South along York Road toward project site.



Figure 13: View from same location as figure 11, looking SW toward Ryan ranch Office park.



Figure 14: View looking south down York road. project site is out of view on left.



Figure 15: View looking north where York road turns east toward York school. Road on left leads to South Boundary road on former Fort Ord.



Figure 16: View looking SE from top of York road spur. Project site is out of view to SE.



Figure 17: View of Upper York road looking SE toward Ryan Ranch Office park.



Figure 18: Upper York road heading east to York high school entrance.



Figure 19: view of north side of York road opposite of York High School. Screening fence runs west to east behind first line of brush and trees. Dense brush further back as well.



Figure 20: View looking west across York Road from lot #3.



Figure 21: View looking north up York road from near intersection with Blue Larkspur road.



Figure 22: View looking East at SW corner of Laguna Seca office park from Intersection of Wilson Road and York road.



Figure 23: View looking South toward intersection of Highway 68 and York road.



Figure 24: View looking east to entrance of lot #5 from cul-de-sac at northern terminus of Citation court.



Figure 25: View of two *Arctostaphylos tomentosa* in understory of Coast Live oak, just west of Lot #5 entry.



Figure 26: View of western edge of lot #5 and Citation court roadway.



Figure 27: project vicinity. Lot #5 is in the middle of the view.

Central Maritime Chaparral

Element Code: CTT37C20CA

<p>_____ Status _____</p> <p>Federal: None</p> <p>State: None</p>	<p>_____ NDDB Element Ranks _____</p> <p>Global: G2</p> <p>State: S2.2</p>	<p>_____ Other Lists _____</p>
<p>_____ Habitat Associations _____</p> <p>General:</p> <p>Micro:</p>		

Occurrence No. 3 Map Index: 10517 EO Index: 16309 Dates Last Seen

Occ Rank: Unknown Element: 1985-03-20

Origin: Natural/Native occurrence Site: 1985-03-20

Presence: Presumed Extant

Trend: Decreasing Record Last Updated: 1998-07-14

Quad Summary: Spreckels (3612156/365C), Salinas (3612166/365B), Marina (3612167/366A), Seaside (3612157/366D)

County Summary: Monterey

Lat/Long: 36.60981° / -121.76825° Township: 15S

UTM: Zone-10 N4052295 E610156 Range: 02E

Area: 10,314.6 acres Mapping Precision: SPECIFIC Section: 20 Qtr: XX

Elevation: Symbol Type: POLYGON Meridian: M

Location: FORT ORD GUNNERY RANGE & VICINITY. (INCL FORMER OCCS #03-06 AT FORT ORD BOTANICAL RESERVES 1,2,5,8).

Location Detail: SMALL BOTANICAL RESERVES W/IN 16000 ACRE BOUNDARY FROM 1982 CDF AERIALS.

Ecological: KNEE-SHOULDER HIGH, OPEN DENSE CHAP W/ CHAMISE, ARCTOSTAPHYLOS MONTEREYENSIS, A. TOMENTOSA SSP. CRUSTACEA, A. PUMILA, A. TOMENTOSA SSP TOMENTOSA, CEANOTHUS RIGIDUS, C. DENTATUS, QUERCUS AGRIFOLIA.

Threat: USED AS MILITARY SHOOTING RANGE W/LOCALIZED DISTURBANCE, ESPECIALLY IN MORTAR RANGE.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: BLM-FORT ORD

Occurrence No. 12 Map Index: 10270 EO Index: 25254 Dates Last Seen

Occ Rank: Unknown Element: 1977-03-XX

Origin: Natural/Native occurrence Site: 1977-03-XX

Presence: Presumed Extant

Trend: Unknown Record Last Updated: 1998-07-14

Quad Summary: Seaside (3612157/366D)

County Summary: Monterey

Lat/Long: 36.58245° / -121.84134° Township: 15S

UTM: Zone-10 N4049178 E603656 Range: 01E

Radius: 1 mile Mapping Precision: NON-SPECIFIC Section: 34 Qtr: XX

Elevation: 200 ft Symbol Type: POINT Meridian: M

Location: MONTEREY MUNICIPAL AIRPORT.

Ecological: STAND INCLUDES ARCTOSTAPHYLOS TOMENTOSA SSP. TOMENTOSA, ADENOSTOMA FASCICULATUM, RARE CEANOTHUS, ERICAMERIA FASCICULATA, ARCTOSTAPHYLOS PUMILA & A. MONTEREYENSIS.

General: MORE INFO IN ELEMENT FILE (VAN80R02). SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: UNKNOWN

Monterey Pine Forest

Element Code: CTT83130CA

Status

Federal: None

State: None

NDDB Element Ranks

Global: G1

State: S1.1

Other Lists

Habitat Associations

General:

Micro:

Occurrence No. 5

Map Index: 10118

EO Index: 14999

Dates Last Seen

Occ Rank: Unknown

Origin: Natural/Native occurrence

Presence: Presumed Extant

Trend: Unknown

Element: 1977-XX-XX

Site: 1977-XX-XX

Record Last Updated: 1998-09-01

Quad Summary: Seaside (3612157/366D), Monterey (3612158/366C)

County Summary: Monterey

Lat/Long: 36.56941° / -121.88069°

UTM: Zone-10 N4047690 E600152

Area: 500.4 acres

Elevation: 600 ft

Township: 16S

Range: 01E

Section: 05 Qtr: XX

Meridian: M

Mapping Precision: SPECIFIC

Symbol Type: POLYGON

Location: JACK'S PEAK REGIONAL PARK; EAST OF DEVIL HILL; SOUTH OF MONTEREY.

Location Detail: LARGE, UNDISTURBED MONTEREY PINE STAND ACCORDING TO CNACC REPORT. SOME GOOD GRASSLAND PRESENT.

Threat: SOME PARK DEVELOPMENT.

General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.

Owner/Manager: MNT COUNTY-JACKS PEAK RP

Valley Needlegrass Grassland

Element Code: CTT42110CA

Status Federal: None State: None	NDDB Element Ranks Global: G3 State: S3.1	Other Lists
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Habitat Associations
General:
Micro:

Occurrence No. 37 Occ Rank: Unknown Origin: Natural/Native occurrence Presence: Presumed Extant Trend: Unknown	Map Index: 10571	EO Index: 17240	Dates Last Seen Element: 1985-03-20 Site: 1985-03-20 Record Last Updated: 1998-07-15
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Quad Summary: Seaside (3612157/366D), Spreckels (3612156/365C)
County Summary: Monterey

Lat/Long: 36.59690° / -121.74884° UTM: Zone-10 N4050885 E611910 Radius: 1/5 mile Elevation: 720 ft	Mapping Precision: NON-SPECIFIC Symbol Type: POINT	Township: 15S Range: 02E Section: 28 Meridian: M Qtr: XX
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Location: SLOPES OF BARLOY CANYON ABOUT 1.1 MILES NNE OF LAGUNA SECA ON BOTH SIDES BARLOY CANYON ROAD, FORT ORD.
Location Detail: ADJACENT TO QUERCUS AGRIFOLIA WOODLAND.
Ecological: UNGRAZED GRASSLANDS W/ ABUNDANT NASSELLA PULCHRA. NASSELLA APPARENTLY RESPONDING WELL TO 1984 FIRE PER HOLLAND, 1985.
General: SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.
Owner/Manager: BLM-FORT ORD

Seaside quad output for McIntosh lot #5 Biological Assessment

Recc QUAD #	NAME	ELEMENT CODE	SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CAL STATUS	DFG STAT/LIST	CNPS Suitable Habitat?	Observed on site?
1 Seaside	AAAAA01180		Ambystoma californiense	California tiger salamander	Threatened	Threatened	SSC	upland	no
2 Seaside	AAABH01022		Rana draytonii	California red-legged frog	Threatened	None	SSC	no	no
3 Seaside	ABNNB03031		Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	SSC	no	no
4 Seaside	ABNSB10010		Athene cucularia	burrowing owl	None	None	SSC	yes	no
5 Seaside	ABPBX80020		Agelaius tricolor	tricolored blackbird	None	None	SSC	no	no
6 Seaside	AFCOA0209H		Oncorhynchus mykiss irideus	steelhead - SC/Scoast DPS	Threatened	None	SSC	no	no
7 Seaside	AMAFF02032		Reithrodontomys megalotis distichlis	Salinas harvest mouse	None	None		no	no
8 Seaside	AMAJF04010		Taxidea taxus	American badger	None	None	SSC	no	no
9 Seaside	ARAAD02030		Emys marmorata	western pond turtle	None	None	SSC	no	no
10 Seaside	ARACC01011		Anniella pulchra nigra	black legless lizard	None	None	SSC	no	no
11 Seaside	CTT37C20CA		Central Maritime Chaparral	Central Maritime Chaparral	None	None		yes	remnant
12 Seaside	CTT42110CA		Valley Needlegrass Grassland	Valley Needlegrass Grassland	None	None		yes	remnant
13 Seaside	CTT83130CA		Monterey Pine Forest	Monterey Pine Forest	None	None		no	no
14 Seaside	ICBRA06010		Lindriella occidentalis	California linderiella	None	None		no	no
15 Seaside	IICOL4A010		Coelus globosus	globose dune beetle	None	None		no	no
16 Seaside	IILEPG2026		Euphilotes enoptes smithi	Smith's blue butterfly	Endangered	None		no	no
17 Seaside	IILEPP2010		Danaus plexippus	monarch butterfly	None	None		no	no
18 Seaside	PDAST3L080		Ericameria fasciculata	Eastwood's goldenbush	None	None	1B.1	no	no
19 Seaside	PDAST4R0P1		Centromadia parryi ssp. congdonii	Congdon's tarplant	None	None	1B.2	no	no
20 Seaside	PDAST5L040		Lasthenia conjugens	Contra Costa goldfields	Endangered	None	1B.1	no	no
21 Seaside	PDAST660C2		Malacothrix s. var. arachnoidea	Carmel Valley malacothrix	None	None	1B.2	no	no
22 Seaside	PDAST6E050		Stebbinsoseris decipiens	Santa Cruz microseris	None	None	1B.2	no	no
23 Seaside	PDAST6E0D0		Microseris paludosa	marsh microseris	None	None	1B.2	no	no
24 Seaside	PDBRA16010		Erysimum ammophilum	sand-loving wallflower	None	None	1B.2	no	no
25 Seaside	PDERI040J1		Arctostaphylos hookeri ssp. hookeri	Hooker's manzanita	None	None	1B.2	marginal	no
26 Seaside	PDERI040R0		Arctostaphylos montereyensis	Toro manzanita	None	None	1B.2	marginal	no
27 Seaside	PDERI04100		Arctostaphylos pajaroensis	Pajaro manzanita	None	None	1B.1	no	no
28 Seaside	PDERI04180		Arctostaphylos pumila	sandmat manzanita	None	None	1B.2	marginal	no
29 Seaside	PDFAB402H0		Trifolium polyodon	Pacific Grove clover	None	Rare	1B.1	no	no
30 Seaside	PDFAB402W0		Trifolium buckwestiorum	Santa Cruz clover	None	None	1B.1	no	no
31 Seaside	PDMAL0Q0B1		Malacothamnus p. var. involucratus	Carmel Valley bush-mallow	None	None	1B.2	no	no

32 Seaside	PDONA050L0	Clarkia jolonensis	Jolon clarkia	None	None	1B.2	no	no
33 Seaside	PDPGN040M2	Chorizanthe pungens var. pungens	Monterey spineflower	Threatened	None	1B.2	no	no
34 Seaside	PDPLM041P2	Gilia tenuiflora ssp. arenaria	sand gilia	Endangered	Threatened	1B.2	no	no
35 Seaside	PDRAN0B0A2	Delphinium californicum ssp. interius	Hospital Canyon larkspur	None	None	1B.2	no	no
36 Seaside	PDR0S0W043	Horkelia cuneata var. sericea	Kellogg's horkelia	None	None	1B.1	no	no
37 Seaside	PDSCR0J0P2	Cordylanthus rigidus ssp. littoralis	seaside bird's-beak	None	Endangered	1B.1	no	no
38 Seaside	PGPIN040V0	Pinus radiata	Monterey pine	None	None	1B.1	no	yes
39 Seaside	PMLL02140	Allium hickmanii	Hickman's onion	None	None	1B.2	no	no
40 Seaside	PMORC1X070	Piperia yadonii	Yadon's rein orchid	Endangered	None	1B.1	no	no

DFG SSC = Species of Special Concern

CNPS List 1B.1 = Rare , Threatened or Endangered in California. Seriously Endangered in California

CNPS LIST 1B.2 = Rare , Threatened or Endangered in California. Fairly Endangered in California

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